THE Journal of the Kansas Medical Society

MAY
1958

VOL LIX
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COMBATS MOST CLINICALLY IMPORTANT PATHOGENS

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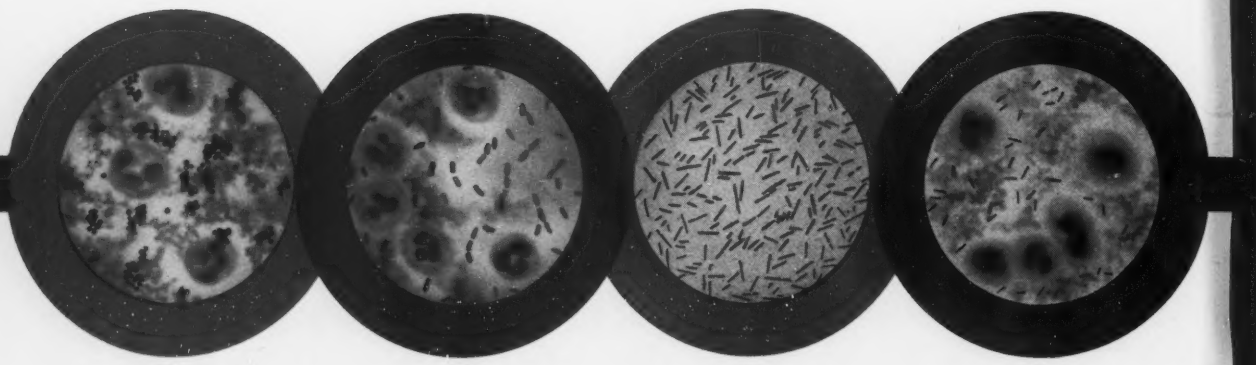

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CHLOROMYCETIN is a potent therapeutic agent, and because certain blood dyscrasias have been associated with its administration, it should not be used indiscriminately or for minor infections. Furthermore, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

REFERENCES: (1) Roy, T. E.; Collins, A. M.; Craig, G., & Duncan, I. B. R.: *Canad. M.A.J.* 77:844 (Nov. 1) 1957. (2) Schneierson, S. S. *J. Mount Sinai Hosp.* 25:52 (Jan.-Feb.) 1958. (3) Koch, R., & Donnell, G.: *California Med.* 87:313, 1957. (4) Waisbren, B. A., & Strelitzer, C. L.: A Five-Year Study of the Antibiotic Sensitivities and Cross Resistances of Staphylococci in a General Hospital, paper presented at Fifth Ann. Symp. on Antibiotics, Washington, D. C., Oct. 2-4, 1957. (5) Doniger, D. E., & Parenteau, Sr. C. M.: *J. Maine M. A.* 48:120, 1957. (6) Royer, A.: Changes in Resistance to Various Antibiotics of Staphylococci and Other Microbes, paper presented at Fifth Ann. Symp. on Antibiotics, Washington, D. C., Oct. 2-4, 1957. (7) Hasenclever, H. F.: *J. Iowa M. Soc.* 47:136, 1957. (8) Josephson, J. E., & Butler, R. W.: *Canad. M.A.J.* 77:567 (Sept. 15) 1957. (9) Rhoads, P. S.: *Postgrad. Med.* 21:563, 1957. (10) Holloway, W. J., & Scott, E. G.: *Delaware M. J.* 29:159, 1957.

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1954 (749 STRAINS) 98%
1953 (455 STRAINS) 99%
1952 (296 STRAINS) 96%
ESCHERICHIA COLI
1956 (91 STRAINS) 99%
1955 (128 STRAINS) 99%
1954 (106 STRAINS) 98%
1953 (87 STRAINS) 100%
1952 (66 STRAINS) 99%
PROTEUS MIRABILIS
1956 (46 STRAINS) 89%
1955 (72 STRAINS) 97%
1954 (36 STRAINS) 86%
1953 (39 STRAINS) 90%
1952 (14 STRAINS) 64%
PSEUDOMONAS AERUGINOSA
1956 (55 STRAINS) 38%
1955 (113 STRAINS) 25%
1954 (102 STRAINS) 15%
1953 (78 STRAINS) 17%
1952 (51 STRAINS) 29%
0 10 20 30 40 50 60 70 80 90 100

*Adapted from Roy and others.[1]

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THE JOURNAL
of the
KANSAS MEDICAL SOCIETY

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Ownership: The Journal is a non-profit publication owned and published monthly by the Kansas Medical Society.

Subscription: A year's subscription to the Journal is included in membership in the Kansas Medical Society, with $2.00 of each member's dues apportioned to the Journal. Rates to others, except in foreign countries, $4.00 per year or 60c per copy.

Material: Scientific articles, editorials, and data of general interest are invited from all members. Articles are to be submitted on condition that they are contributed solely to this publication. A right is reserved to reject any material deemed unsatisfactory.

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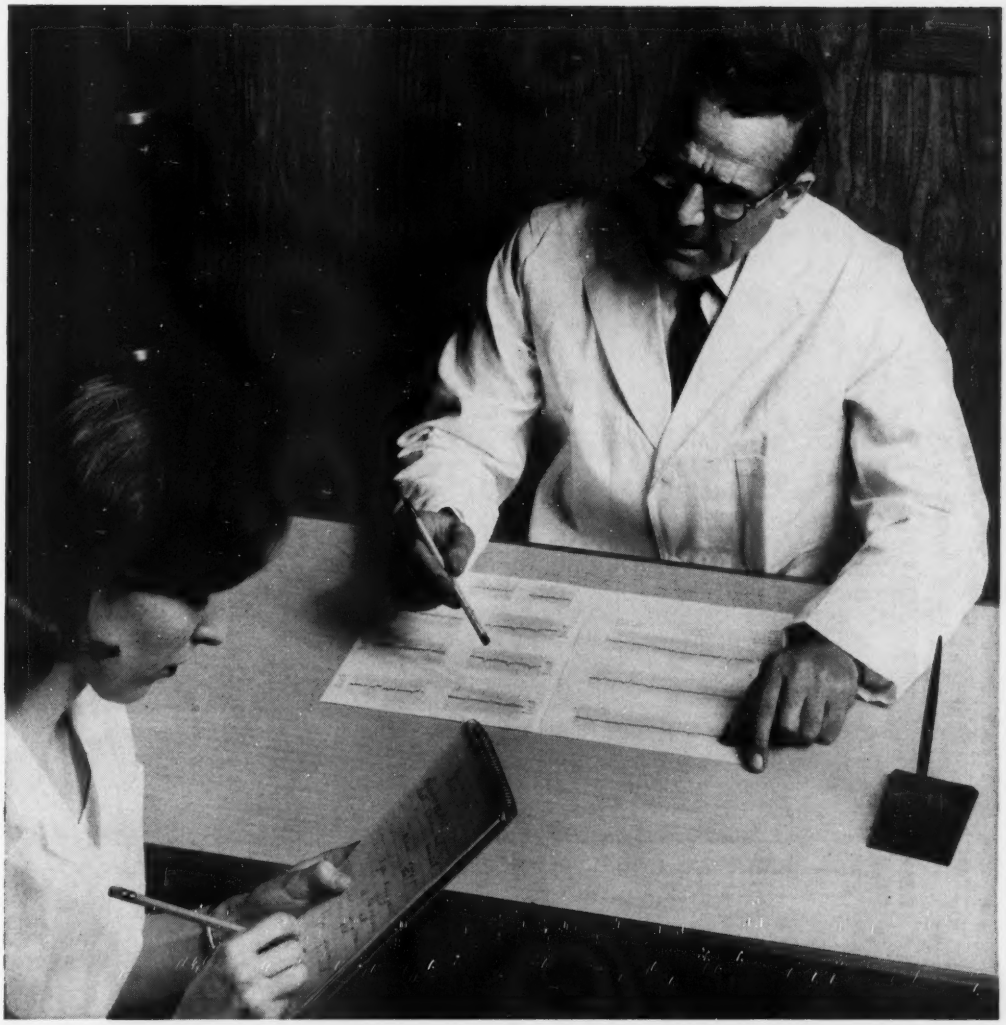

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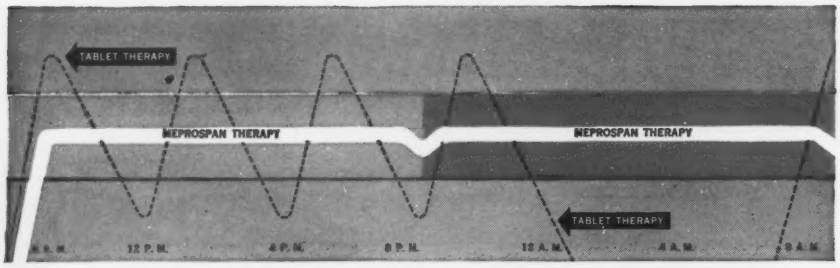

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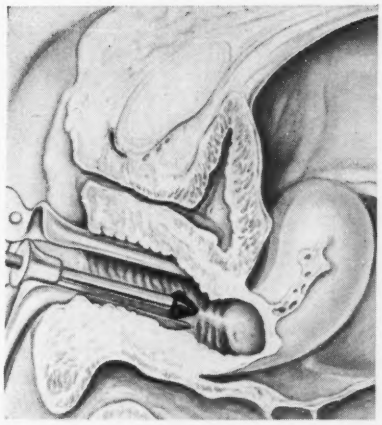

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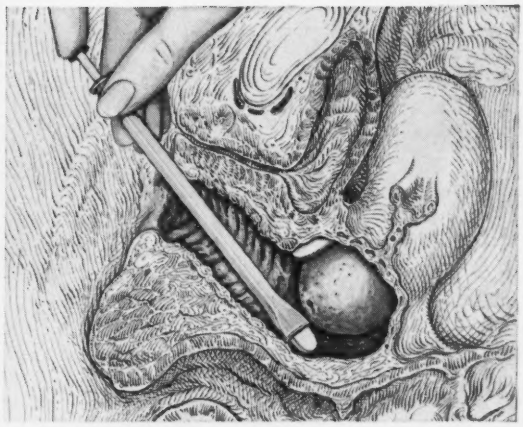

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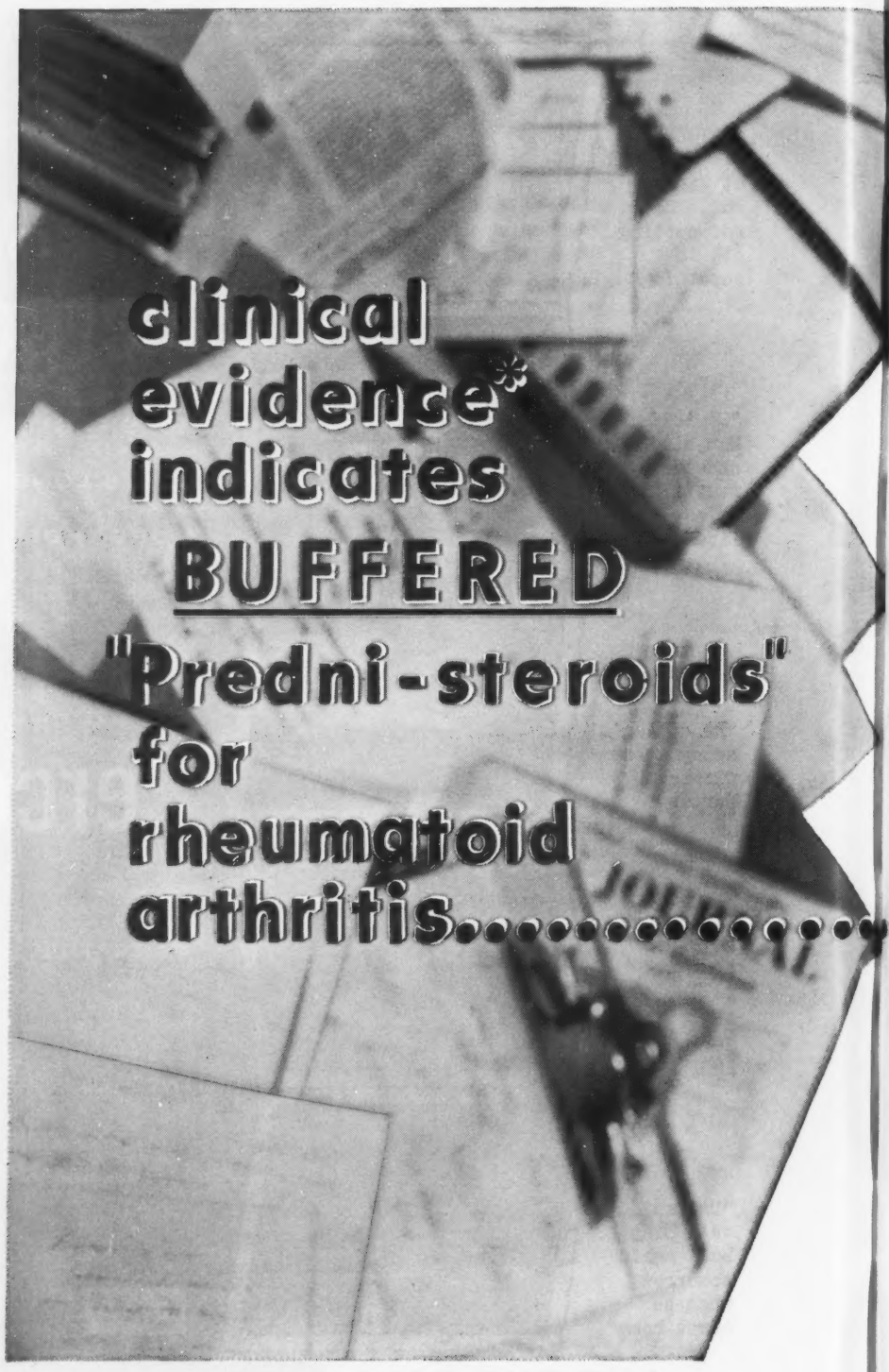
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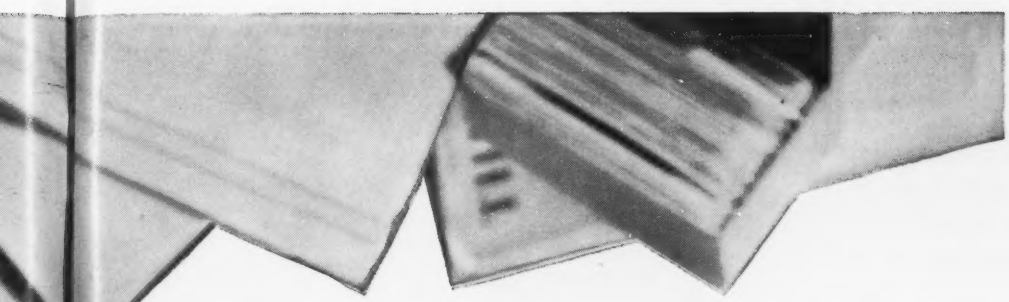

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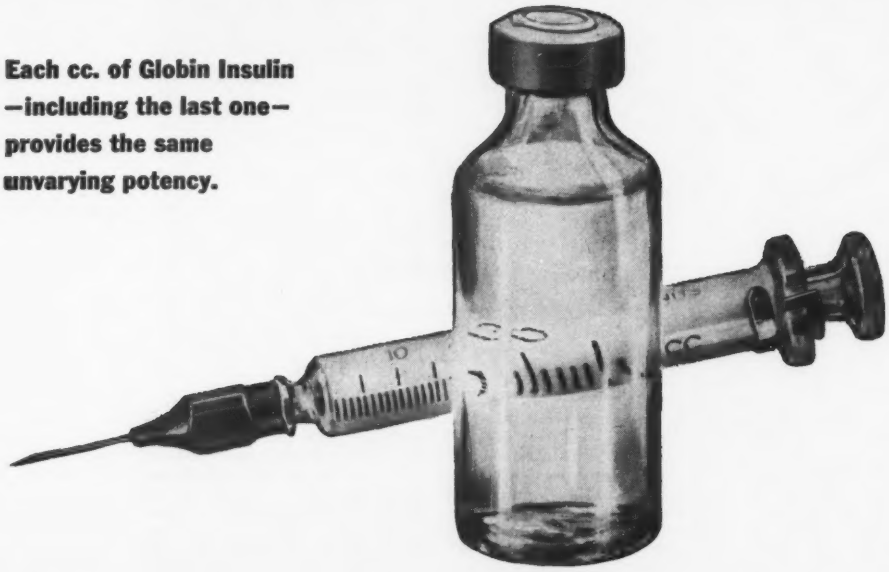

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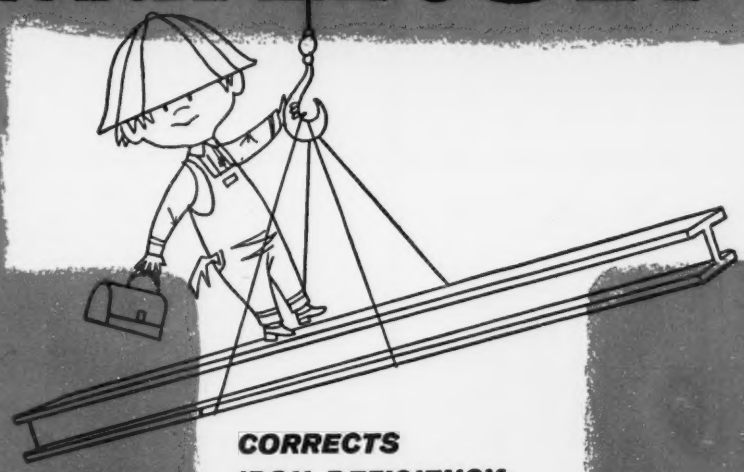

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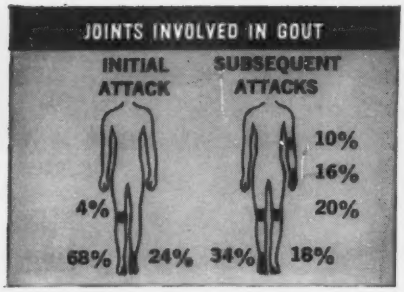

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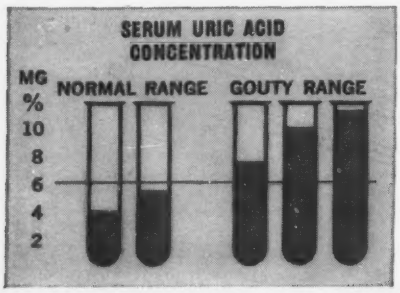

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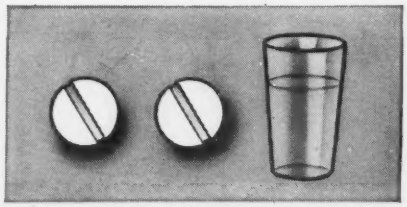

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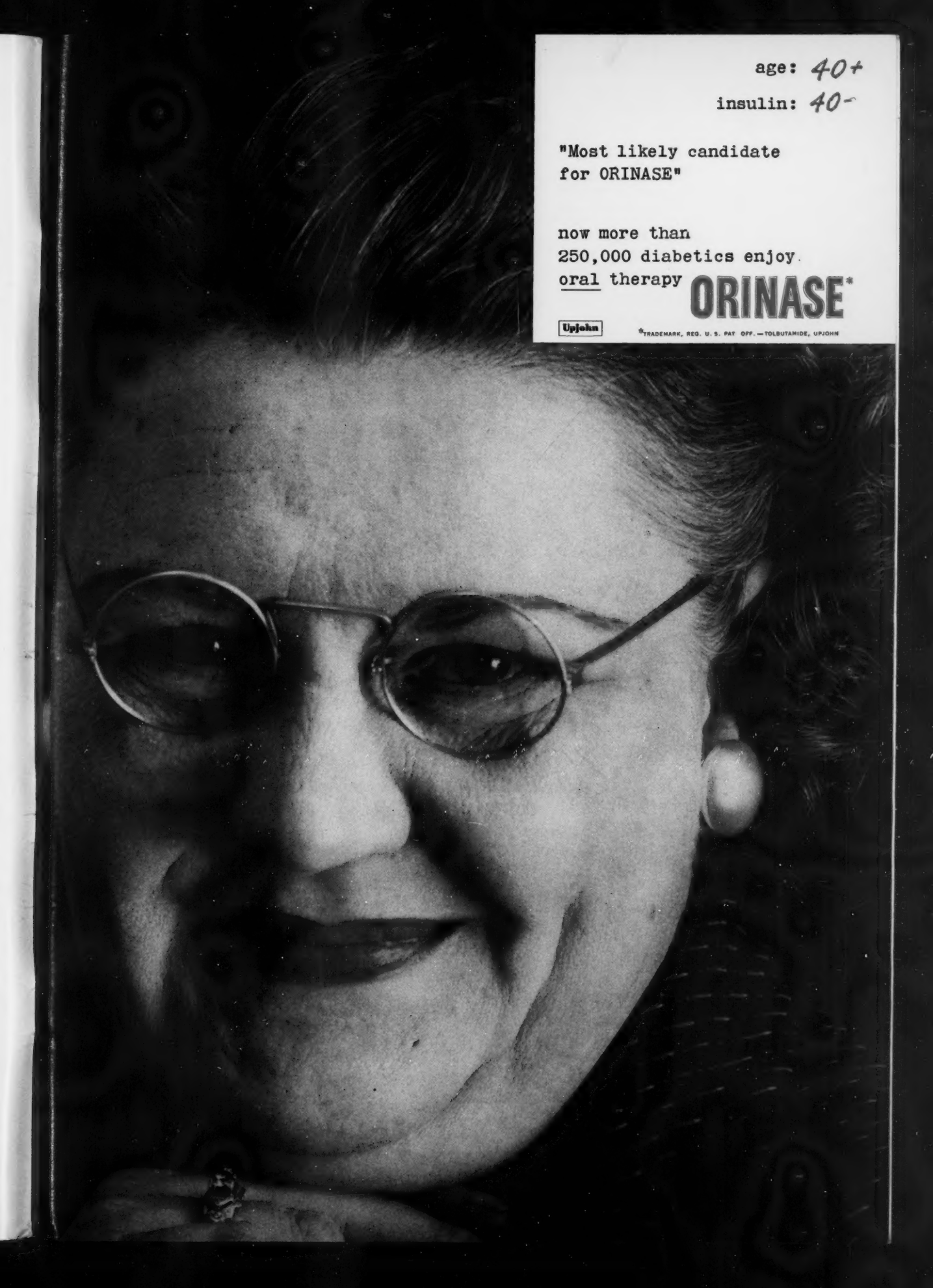
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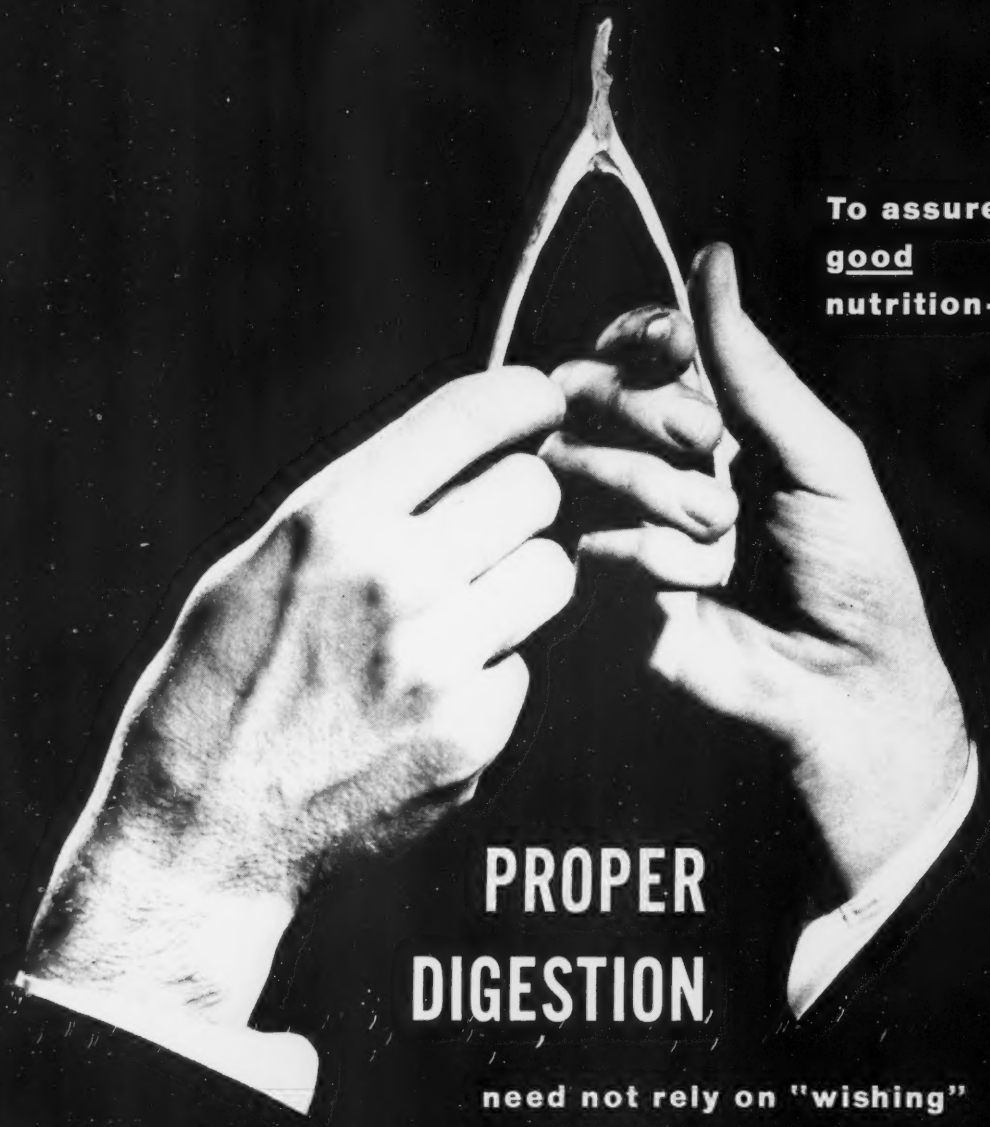

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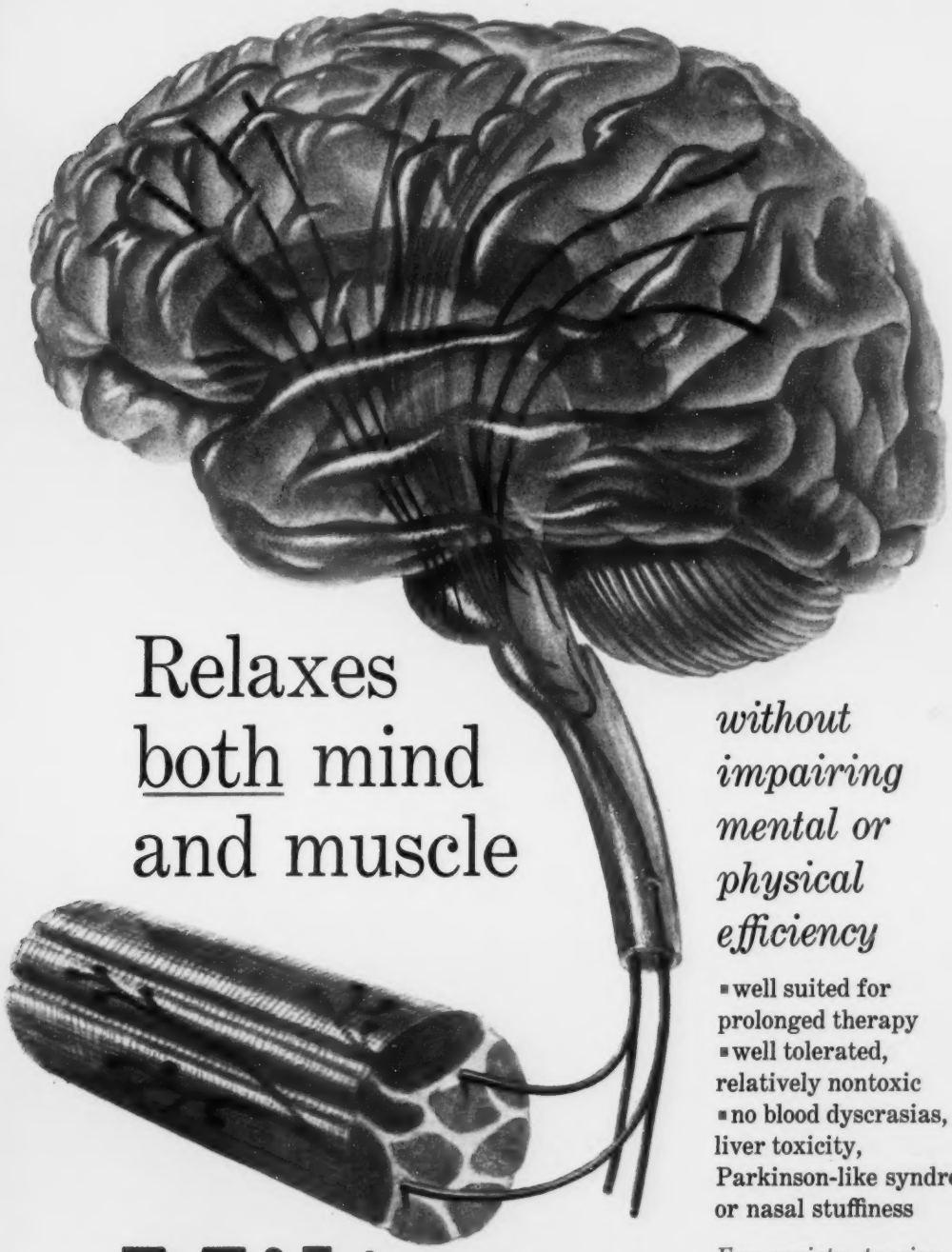

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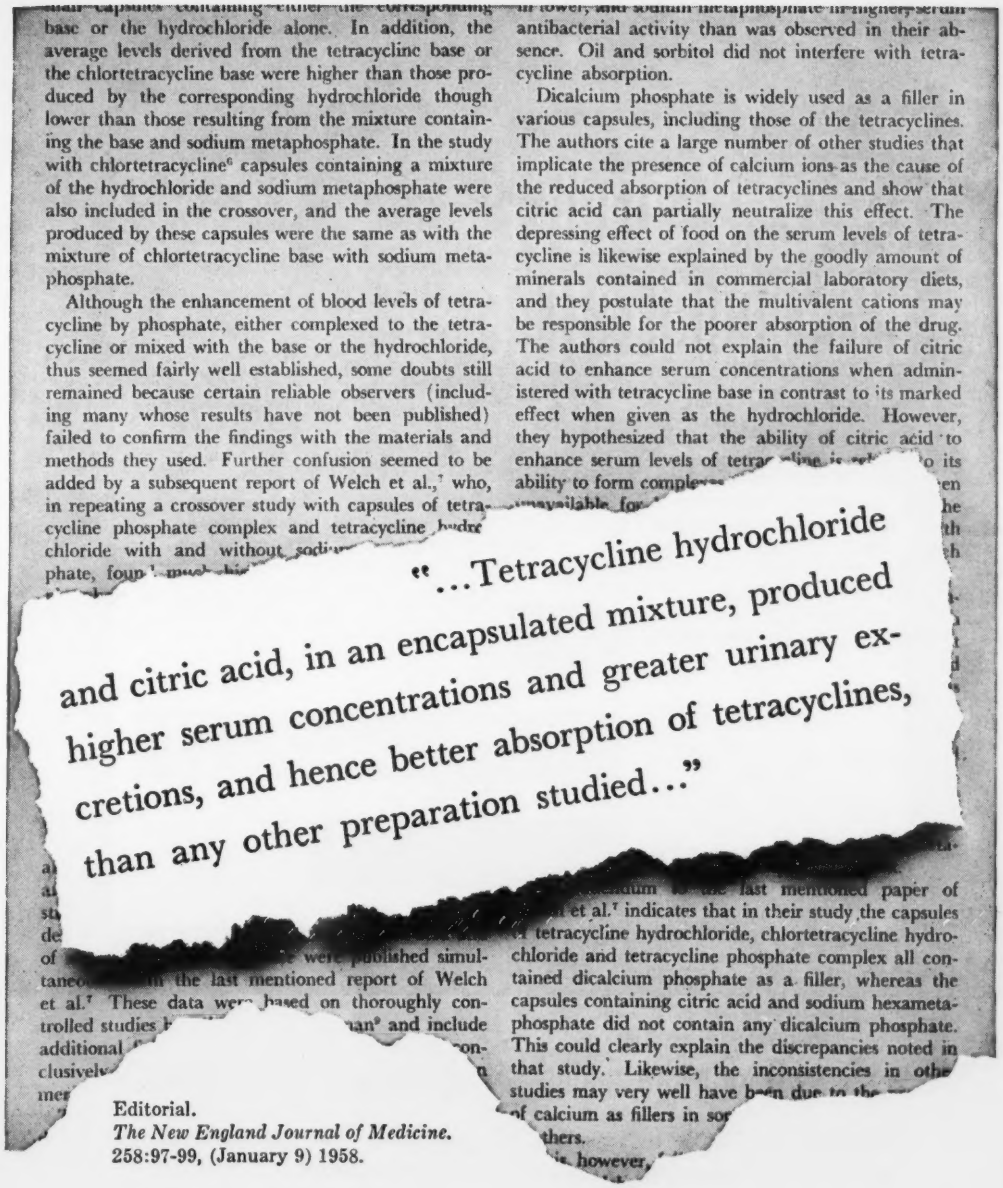

base or the hydrochloride alone. In addition, the average levels derived from the tetracycline base or the chlortetracycline base were higher than those produced by the corresponding hydrochloride though lower than those resulting from the mixture containing the base and sodium metaphosphate. In the study with chlortetracycline[6] capsules containing a mixture of the hydrochloride and sodium metaphosphate were also included in the crossover, and the average levels produced by these capsules were the same as with the mixture of chlortetracycline base with sodium metaphosphate.

Although the enhancement of blood levels of tetracycline by phosphate, either complexed to the tetracycline or mixed with the base or the hydrochloride, thus seemed fairly well established, some doubts still remained because certain reliable observers (including many whose results have not been published) failed to confirm the findings with the materials and methods they used. Further confusion seemed to be added by a subsequent report of Welch et al.,[7] who, in repeating a crossover study with capsules of tetracycline phosphate complex and tetracycline hydrochloride with and without sodium metaphosphate, found

antibacterial activity than was observed in their absence. Oil and sorbitol did not interfere with tetracycline absorption.

Dicalcium phosphate is widely used as a filler in various capsules, including those of the tetracyclines. The authors cite a large number of other studies that implicate the presence of calcium ions as the cause of the reduced absorption of tetracyclines and show that citric acid can partially neutralize this effect. The depressing effect of food on the serum levels of tetracycline is likewise explained by the goodly amount of minerals contained in commercial laboratory diets, and they postulate that the multivalent cations may be responsible for the poorer absorption of the drug. The authors could not explain the failure of citric acid to enhance serum concentrations when administered with tetracycline base in contrast to its marked effect when given as the hydrochloride. However, they hypothesized that the ability of citric acid to enhance serum levels of tetracycline is related to its ability to form complexes

"...Tetracycline hydrochloride and citric acid, in an encapsulated mixture, produced higher serum concentrations and greater urinary excretions, and hence better absorption of tetracyclines, than any other preparation studied..."

et al.[7] indicates that in their study the capsules of tetracycline hydrochloride, chlortetracycline hydrochloride and tetracycline phosphate complex all contained dicalcium phosphate as a filler, whereas the capsules containing citric acid and sodium hexametaphosphate did not contain any dicalcium phosphate. This could clearly explain the discrepancies noted in that study. Likewise, the inconsistencies in other studies may very well have been due to the presence of calcium as fillers in some others.

Editorial.
The New England Journal of Medicine.
258:97-99, (January 9) 1958.

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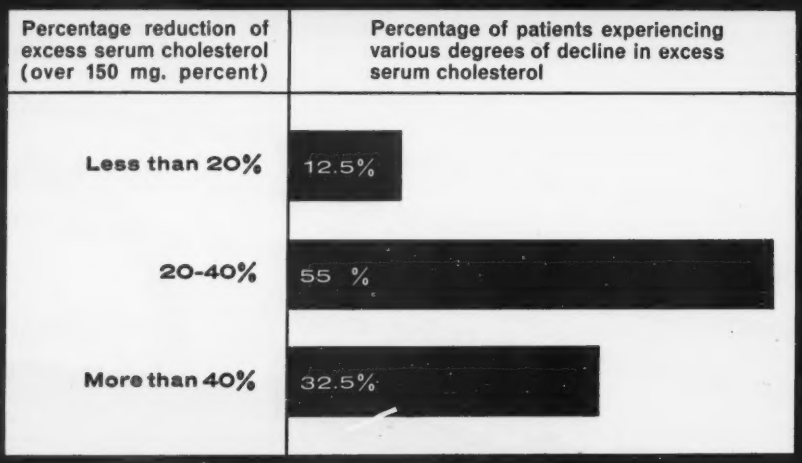
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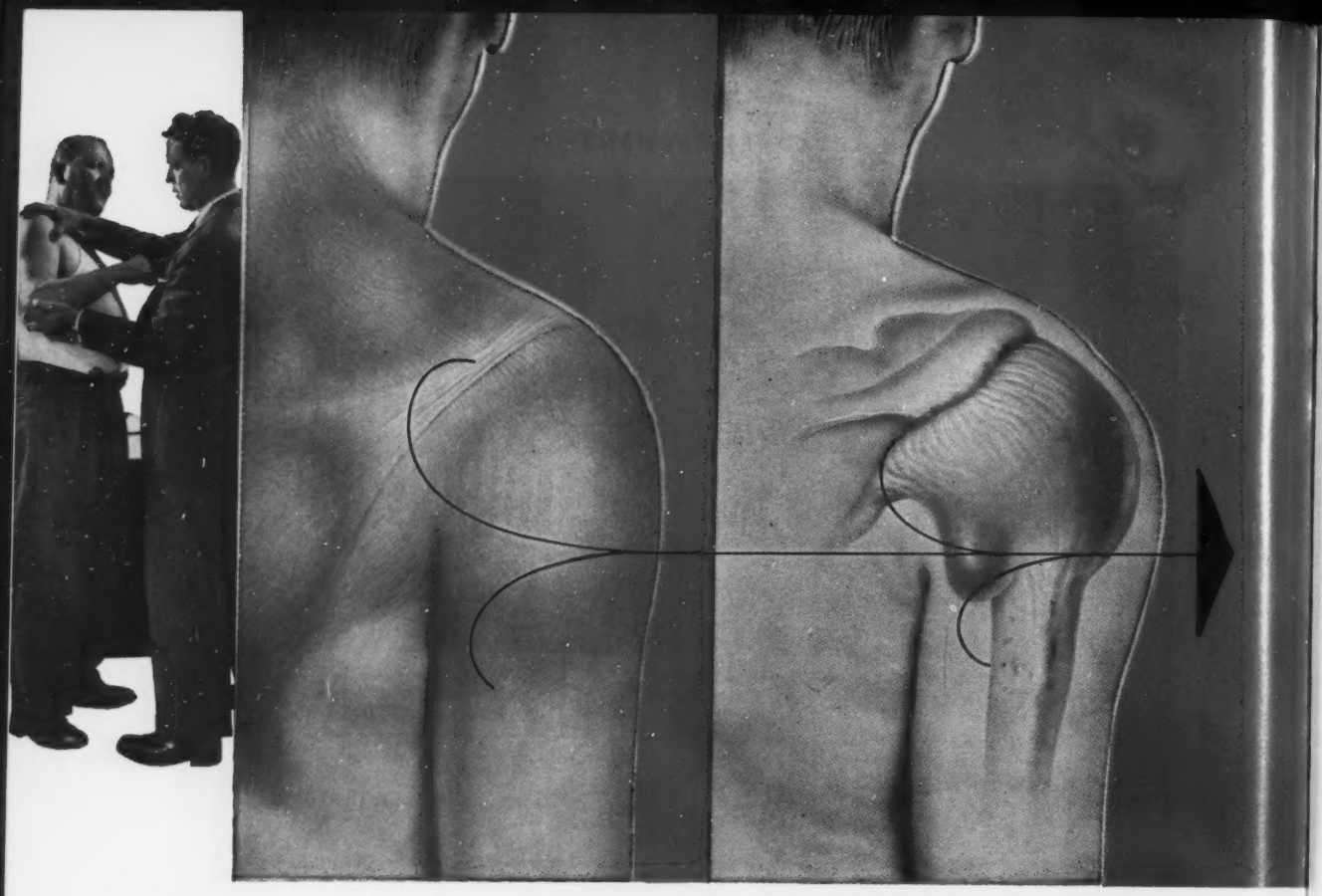

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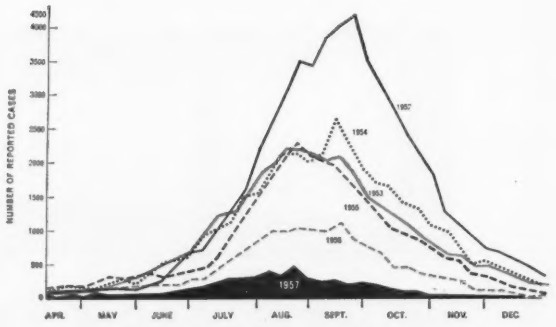

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2. Department of Health, Education, and Welfare: News Release, October 10, 1957.

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Volume LIX **MAY, 1958** **No. 5**

Cervical Spine Fusion

Treatment of Forward Fracture-Dislocation

JOHN F. THURLOW, M.D., ***Hays***

During the past several years, we have had occasion to treat 26 forward fracture-dislocations of the cervical spine. It was felt necessary in four of these cases to perform cervical spine fusion to restore stability. We would like to report these four cases, although the number is small, in order to point out that the procedure may be a useful adjunct in the treatment of the severe case.

Fusion of the injured and adjacent cervical vertebrae in the treatment of forward fracture-dislocation is not new. An attempt at internal fixation of the cervical spine was made in 1891 by Hadra,[1] who lashed the cervical spinous processes together with wire. In 1937, Ryerson and Christopher[2] reported a case in which they obtained fusion of the cervical spine by means of wire fixation and bone graft.

The principal contribution on this subject was made in 1942 by William A. Rogers[3] of Boston. He reported 11 cases of forward fracture-dislocation of the cervical spine in which it was necessary to stabilize a segment by osseous fusion. Rogers emphasized the necessity for preliminary skeletal traction by means of skull tongs. He also recommended the use of endotracheal anesthesia for the fusion.

In connection with the use of endotracheal anesthesia we would like to point out a report by Frederick A. Fender[4] of San Francisco. Fender pointed out that after injury of the cervical spine, quadriplegia from massive disk herniation could occur as a result of intubation. This was proved by autopsy in one case.

Our method of treatment differed from that of Rogers in three respects. First, we were able to effect reduction by skeletal traction prior to surgery, so that open reduction was avoided. Second, we did not employ wire fixation of the vertebrae to be fused. Third, we employed local anesthesia in carrying out the fusion although at the outset we were not aware of Fender's experience.

Local anesthesia in exposing and fusing the cervical spine has proved to be unexpectedly satisfactory. Our

The important consideration in forward fracture dislocation is maintenance of the integrity of the cervical cord and spinal nerves. The use of traction with skull tongs provides safety in this regard, makes the patient comfortable, and usually brings about reduction. When there is considerable damage to the injured vertebra, with instability, free fragments, or long continued dislocation prior to treatment, cervical spine fusion may be necessary to prevent recurrence of deformity and return of nerve pressure symptoms. Fusion can be done with greater safety under local anesthesia. Fusion of a segment of the cervical spine is readily obtained, using iliac bone, does not increase duration of hospital stay, and assures stability and continued freedom from pain and eventual degenerative change. The limitation of motion resulting is not considered by the patients to be disabling.

Presented before the Orthopedic Section, Kansas Medical Society, Hutchinson, May 1955, and before the Kansas Chapter, American College of Surgeons, Great Bend, September 15, 1957.

experience in this small number of cases indicated that it was of definite help to have the patient's comments on the effects of pressure in the area of the cervical spine being exposed. Pressure on the dural sac can thus be avoided. The procedure under local anesthesia was tolerated remarkably well.

Indications

It is our feeling that fusion of the injured and adjacent cervical vertebrae is required in three varieties of forward fracture-dislocation. In general, these are those in which the greater instability and likelihood of pressure on the dural sac and cord exist.

The first type of case in which we believe fusion is advisable is that in which there is definite comminution and compression of the vertebral body. Here fusion may be necessary to prevent recurrence of flexion deformity following discontinuance of immobilization.

The second type of case in which fusion is felt to be advisable is that in which the posterior elements of the injured cervical vertebra are detached from the vertebral body so that there is random movement of the vertebral body and the free posterior elements.

The third indication for cervical spine fusion is a dislocation of long standing. These are prone to recur in spite of long continued immobilization.

General Treatment Plan

Our plan of treatment was to institute traction in some form as soon as possible after the patient is first seen. Skeletal traction is applied after satisfactory films are obtained. We prefer the use of Barton skull tongs and the Stryker frame, the head of which is elevated. The tongs are made fast to the head of the frame to create traction by the weight of the patient's body. This permits turning of the patient and facilitates his care. The amount of traction is varied by raising or lowering the head of the Stryker frame. Raising or lowering the patient's shoulders permits one to vary the degree of flexion or extension of the neck.

We have employed a pull in the line of deformity at the outset, gradually bringing about a small degree of extension as portable x-ray films indicate improved position. In the cases discussed in this paper, traction brought about a satisfactory reduction in periods varying from five days to four weeks. After reduction was obtained, as indicated by films, it was tested by gentle extension of the patient's neck by elevation of the shoulders. If no paresthesia or discomfort resulted from the extension, it was felt to be of sufficient stability for carrying out fusion.

To carry out cervical spine fusion on the conscious patient requires attention to some minor but important details. Transfer to the prone position on the surgical table must of course be done with continued traction and without flexion or extension of the neck. There must be a comfortable support for the face, a degree of immobilization of the head, no interference with breathing, and a provision for continuing traction during surgery. We found the McBride frame for low back surgery useful for this purpose. The Stryker frame may also be used as an operating table but must be elevated to a satisfactory working level.

The patient's back was prepared and bone was obtained from the ilium, using 1 per cent and ½ per cent procaine. These cancellous bone strips were set aside, the donor site was closed, and the cervical region was infiltrated with procaine over the area for which exposure was desired.

When we approached the deep cervical fascia, ½ per cent procaine was infiltrated in the cervical muscles and down to the laminae. These were cleared with sharp and blunt dissection in the region felt to be the site of injury. A clip was placed on the first spinous process which was exposed, and a lateral x-ray was taken for identification; this is a necessary precaution to be certain of fusing the vertebrae which require it. After complete exposure of the affected vertebrae, and the laminae of the adjacent vertebrae, those are roughened with the Hibbs gouge or rongeur. It may not be possible to turn up bone fragments on the injured vertebra, as the laminae may be loose. The cancellous bone strips are then laid across the roughened laminae, bridging the injured and adjacent vertebrae. The spinous processes are then freshened and a graft is laid over them. Wire was not used to obtain any part of the fixation in our cases, although this has been the practice elsewhere.

The cervical fascia was then sutured over the grafts, and the closure completed to the skin. The patient was immediately returned to the Stryker frame, and traction was continued.

After-Care

Traction was then continued for varying lengths of time, according to the requirements of the individual case. After three or four weeks, on the average, a cast was applied. The patient was then allowed to be up and was discharged from the hospital.

The cast was removed when x-rays seemed to indicate that fusion was firm, which was usually in three months. A cervical brace was then substituted. Further consolidation of the graft was then allowed to take place before removal of this protection.

Case Reports

Case 1. This patient, a 30-year-old racing driver, was injured July 22, 1952, when his car overturned in a race. On regaining consciousness, he noticed weakness of the right arm and difficulty in voiding.

He was transferred to our hospital where an exam-

ination showed absence of reflexes in the right arm but no pathological reflex in any extremity. A lateral view of the cervical spine showed a fracture-dislocation of the third cervical vertebra with separation of the anterior and posterior portions of the vertebra (Figure 1).

The antero-posterior view of the cervical spine showed a defect in the right lamina of the third cervical vertebra and an avulsion of the right first rib, which accounted for weakness and hypesthesia of the right arm. Skull tongs were applied on the day following admission to the hospital, but he continued to require catheterization.

After four days of traction with skull tongs on a Stryker frame, there was some improvement in the alignment of the cervical spine. Traction was continued with the equivalent of 15 pounds of weight and he regained his ability to void, although return of function in the right arm was slow.

After four weeks of traction, there was a more nearly normal relationship of the third cervical body with that of the second and fourth. An additional two weeks was allowed to elapse, however, before spine fusion was done so that there would be less tendency to free movement of the posterior elements of the vertebra. Six weeks after the accident, he was taken to surgery where fusion was carried out. With pressure of the gouge on the third cervical lamina, there was complaint of tingling in the upper and lower extremities. It was possible to roughen the lamina, however, with short, quick taps on the gouge. The procedure was slow and difficult in this case because of bleeding, and it required three hours. There was moderate shock. There was some swelling of the neck for the first few days following surgery, but the patient was comfortable. He remained in traction for four weeks, when a cast was applied and the tongs removed. He got up in the cast, and slight flexion deformity reappeared at the site of injury, but we felt it to be insufficient to prevent a good result. He was discharged from the hospital one month after operation.

Figure 1 shows the fusion present three and a half months after operation. The cast was removed two and a half months after its application, and there was then fairly solid union between the second, third, and fourth cervical vertebrae. He wore a protective cervical brace until February, 1953, at which time he was discharged as recovered. There was still slight residual arm weakness, but he passed an examination as a police officer. He had no discomfort but there was slight restriction of neck motion in flexion and extension, as would be expected.

Case 2. This 19-year-old boy was injured in an automobile collision in July, 1950, and complained of tingling in the fingers of his right hand. A lateral view of the cervical spine showed a comminuted fracture of the fifth cervical vertebra (Figure 2), with dislocation and encroachment on the spinal canal. There was no neurological deficit. Barton tongs were applied, using conventional traction with the patient in bed, the head of which was elevated.

After three days of traction, the height of the vertebral body was restored and we decided to carry out cervical spine fusion with local anesthesia, which was done 12 days after the accident. After this surgery the patient was placed on the Stryker frame, and traction was continued for six weeks. A cast was applied and he was discharged two months after the accident. The cast was removed four months after the injury. He wore a brace for approximately ten weeks; then he

Figure 1, Case 1. The antero-posterior view shows a fracture of the right lamina of C-3. Avulsion of the right first rib is also seen in this film. The lateral view shows the detached vertebral body of C-3 shifted forward and rotated. The second lateral view shows the postoperative alignment and fusion mass.

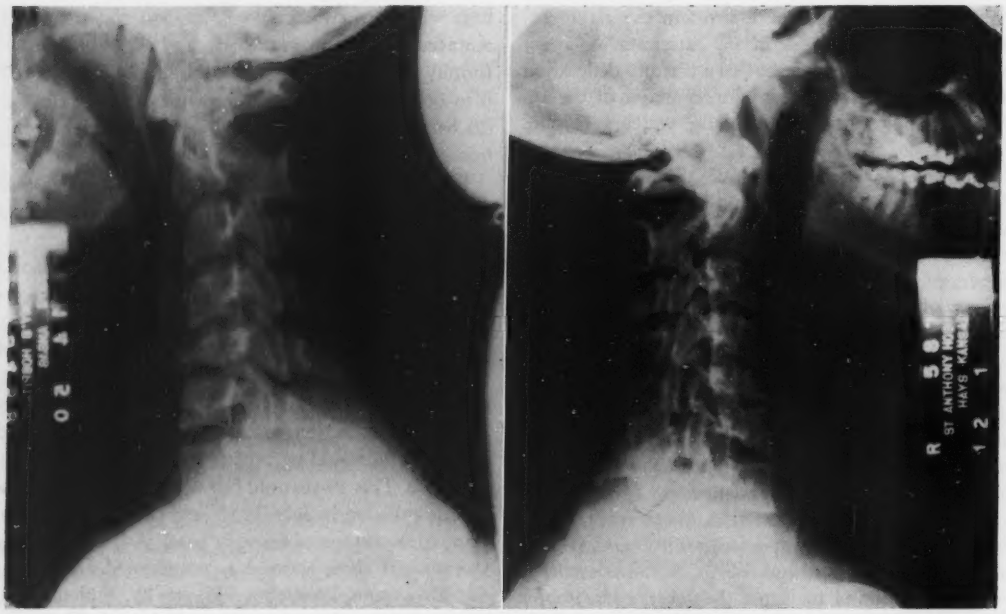

Figure 2, Case 2. On the left, comminution of the body of C-2 and encroachment of the fragments on the spinal canal are evident. The second lateral view shows the fusion obtained (Dr. Moore's case).

was discharged. The patient was not seen again until December 1, 1953.

He was then in a Marine uniform with overseas ribbons, having seen combat service in Korea. Figure 2 shows the fusion obtained. He had no complaints, had not been inconvenienced by his fusion, and was no longer aware of having any limitation of neck motion.

Case 3. A 22-year-old housewife was injured on June 17, 1951, in a car which overturned. At a nearby hospital she was found to have a fracture of the right forearm and of the left clavicle. These fractures were treated, but the cervical spine injury escaped notice in spite of the fact that films of the neck were made. She complained of increasing neck pain which had become severe five weeks after the accident and was forced to rest in bed frequently to relieve it.

We first saw her three months after the accident. At that time her cervical spine injury had been discovered. She then complained of stiffness of the neck,

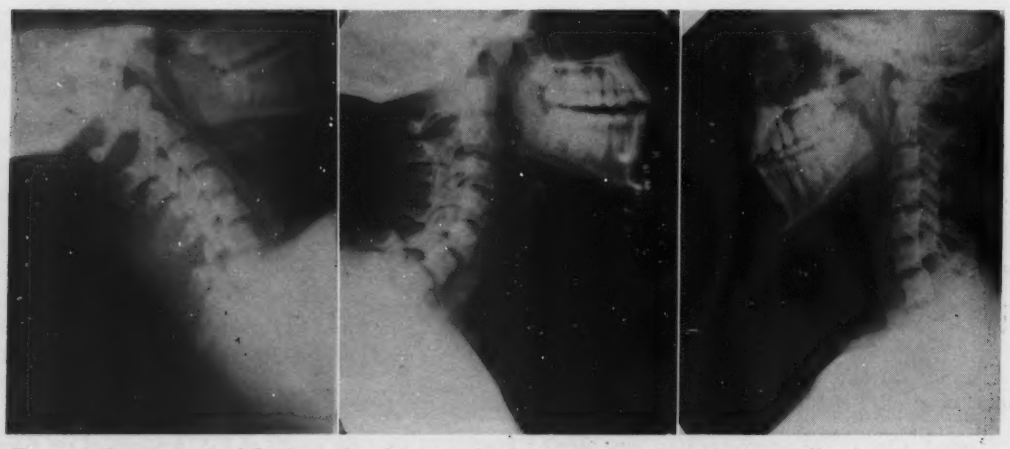

Figure 3, Case 3. At the left, the patient is attempting flexion of the neck; in the second film there is an attempt at extension; in both views fracture-dislocation at C-6-7 is evident. On the right are seen the postoperative alignment and the fusion of C-5-6-7.

pain in the back and legs with flexion of the head, and neck discomfort on attempts to extend the neck. Examination showed slight inequality of reflexes and a questionably positive left Hoffmann reflex. There was extension of the toes on stroking the left shin, but the Babinski sign was bilaterally negative. Films were taken in flexion and extension, and Figure 3 shows efforts to flex and extend the neck.

A dislocation between the sixth and seventh cervical vertebrae is evident. It can now be seen also that there is detachment of the spinous process from the body and articular processes of the sixth cervical vertebra. We advised skeletal traction but doubted that this alone could effect reduction. Tongs were applied and the patient was treated on a Stryker frame.

After four days of traction there was some improvement, and it was felt that one facet might have slipped posteriorly. After one week of traction there was an apparent reduction of the dislocation, and both facets appeared to be reduced. Oblique films were then made, and the impression that reduction of the facets on both sides had been effected was confirmed.

Twelve days after admission she was taken to surgery where the fifth, sixth, and seventh cervical vertebrae were fused with iliac bone. Ten days after surgery the sutures were removed and a cast was applied which, it was felt, would effectively hold the neck and head in extension and prevent loss of reduction.

She was then ambulatory in her cast but remained in the hospital. She complained of pain in the right shoulder and thorax and of discomfort in the right tempero-mandibular joint. These complaints were eventually relieved and she was discharged to go home seven weeks after admission. She returned as an out-patient in five weeks, bringing films which were taken elsewhere and which showed recurrence of some forward displacement of the sixth cervical vertebra. This required removal of the cast and an additional period of traction of about five weeks. She then wore a cervical brace of the Forrester type. Figure 3 shows the degree of fusion four months after operation. There is slight forward shift of the sixth on the seventh cervical vertebra, but stability has been regained.

She was completely relieved of her arm complaints and did not feel that she had any noticeable degree of restriction of neck movement.

Case 4. This patient was a 26-year-old stockman who fell asleep at the wheel of his car and collided with a building in August, 1951. He was unconscious for a time. On regaining consciousness he complained of pain in his right shoulder. There was difficulty in voiding, lasting several days. We first saw him a week after the injury. There was no discernible neurologi-

Figure 4, Case 4. At the left, the fragmented body of C-5 is seen prior to treatment by traction; the body of this vertebra is shifted toward the spinal canal. In the second film, postoperative alignment and fusion between C-4-5-6 are seen.

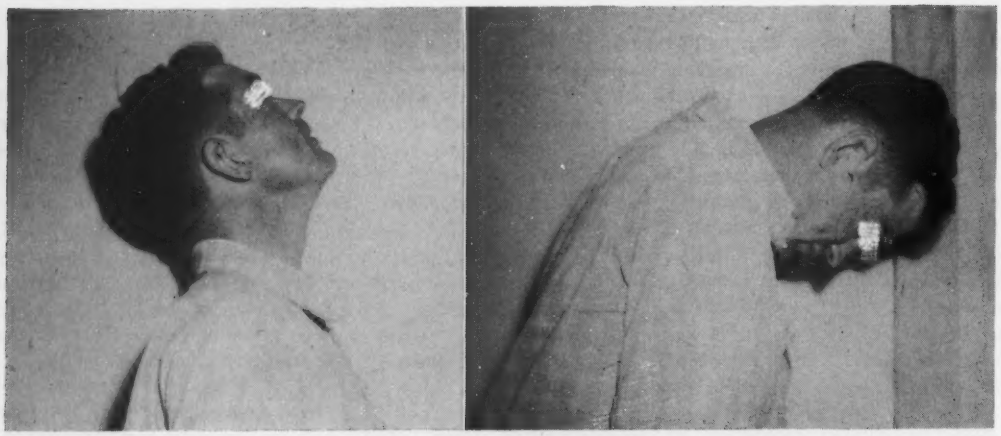

Figure 5, Case 4. Photographs showing the range of flexion and extension following fusion from C-4 to C-6 inclusive.

cal deficit. Figure 4 shows a comminuted fracture of the fifth cervical vertebra and the posterior shift of the vertebra so that it intrudes on the spinal canal.

The traction rapidly improved the alignment of the cervical spine. Extension was then gradually increased by elevating the shoulders. The complaint of pain in the right shoulder and arm subsided. Eighteen days after admission, cervical spine fusion was done, bridging the fourth, fifth, and sixth cervical vertebrae with iliac bone. Traction was continued on the Stryker frame for four weeks after operation, when a cast was applied and he was discharged from the hospital. Three and one-half months after fusion the cast was removed. He wore a brace for a few weeks. Figure 4 shows the degree of fusion which was obtained. This film was taken a year after operation. He had carried on full farm work since the time we had last seen him and had had no discomfort in the neck or arm.

Figure 5 shows the range of extension movement in this patient after fusion of the fourth, fifth, and sixth cervical vertebrae.

Conclusion

1. Skeletal traction should be instituted as soon as possible after injury of the cervical spine. It may improve position or even bring about reduction after long delay in beginning treatment.

2. Cervical spine fusion can be helpful in restoring stability to the damaged cervical spine, but it should be delayed until maximum improvement in alignment has been effected by traction.

3. Continued traction for not less than four weeks following surgery is advisable, after which a cast or an accurately fitting brace can be used to get the patient up and about.

4. Immobilization can later be provided with a cervical collar, and it should be continued for at least four months after surgery.

Box 696
Hays, Kansas

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Profit is a must. There can be no security for any employee in any business that doesn't make money. There can be no growth for that business. There can be no opportunity for the individual to achieve his personal ambitions unless his company makes money.

—Duncan C. Menzies

Carcinoma of the Male Breast

Papilliferous Cystadenocarcinoma

RALPH R. MELTON, M.D., ***Marion***

A cyst of the male breast is extremely rare. Approximately 1 per cent of all carcinomas of the breast occur in males. Since it occurs infrequently, it arouses considerable interest when it is diagnosed and stimulates a desire to share that interest with others.

This is especially true when the tumor is of enough size to photograph well. Good clinical photographs were obtained of the case herein presented. It is rather unusual for a surgical delicacy to be permitted to attain such glorious proportions unmolested under the assumption that because of the patient's age, no harm would come from it. The presentation here, with photographs, may stimulate interest in the examination of the male breast and in other medical rarities that occasionally are encountered in a general practice.

Case History. A 79-year-old white male, a retired farmer, presented himself on August 4, 1953, with a chief complaint of swelling in the left breast which had gradually enlarged since 1946 and was irritated by his clothing. An occasional sharp pain had shot through it during the past six months. The only history of injury was that when he was a young man he had been kicked in this area by a horse and the hoof print remained for several days.

Personal History. He usually felt well except for some heart trouble (irregular) for several years for which he was taking aminophylline. It was also reported that he had suffered a slight stroke in June, 1953. He had been under treatment by his physician for these various ailments since 1949. No hormones had been given for prostate or breast.

Family History. No history of cancer had been reported in his family.

Physical Examination. Except for some arteriosclerotic changes, slight parkinsonism, slurring of speech, and a slight irregularity of his heart, the physical examination was negative. Blood pressure was 140/90, pulse 80, regular. He was rather obese. The prostate was enlarged 3 plus. The left breast was enlarged 8 x 7 x 4 cm. and was pendulous, the skin was thinned and bluish. The breast was transilluminated. The swelling was fluctuant, movable, and discrete. The nipple was retracted and adherent, and there was no discharge. There were no palpable lymph glands. The right breast was larger than usual.

Surgery. A mastectomy was performed under 1 per cent procaine.

Pathological Report. The specimen consisted of an elliptical piece of skin which measured 11 cm. by 8 cm. The center of the skin was occupied by a mammilla. There was an abundance of subcutaneous tissue attached. The consistency of the specimen was soft. On cut section, there was a large cyst within the subcutaneous tissue which was filled with a brownish

Carcinoma of the breast is infrequent in males. Approximately 1.24 per cent of all breast carcinomas occur in the male breast. Approximately 20 per cent have a five-year survival after treatment. Regional metastasis is of high incidence at the time of consultation. Treatment of choice is radical mastectomy. Orchiectomy, radiation, and hormones (stilbestrol) are palliative in far advanced cases.

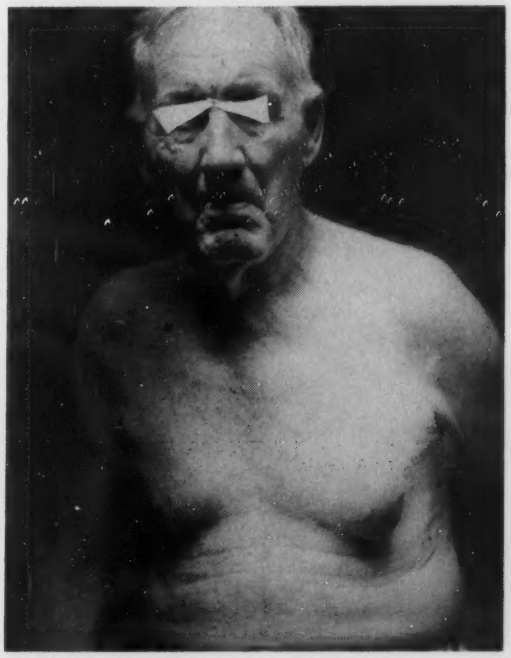

Figure 1. Papilliferous cystadenocarcinoma of the breast.

gelatinous material. The wall of this cyst showed a papillary tumor which was brownish red and measured approximately 1 cm. in thickness.

Microscopic Examination. Sections of the submitted lesion taken from the wall at the site of the grossly papillary structure showed the wall to be composed of a dense fibrous and collagenous connective tissue. The lining was formed by columnar epithelium arranged in elongated papillary structures with a stalk of fibrous connective tissue. Adjacent to these were irregular glandular structures which were lined by epithelium arranged in papillary formation. There were focal deposits of deeply basophilic calcified material within the tumor. The individual cells had small, round to oval nuclei and an abundance of granular, well defined eosinophilic cytoplasm. Moderate numbers of mitotic figures were identified. There was variation in the size, shape, and staining reaction of the individual tumor cells.

Pathological Diagnosis. Dr. W. P. Callahan, Jr., Wichita pathologist, gave a diagnosis of papilliferous cystadenocarcinoma of the breast.

Postoperative Course. Other than being confused at times, the patient's postoperative period for the first seven days was uneventful. The wound was healing nicely and the sutures were removed. The seventh night, in trying to get back in bed, his wound was avulsed. This was repaired. He was released to go home and return to have the sutures removed later. He recovered nicely without x-ray therapy. He died on October 17, 1957, with no evidence of recurrence or metastasis. Death was attributed to "several light strokes."

Review. Approximately 0.14 per cent of all cancer in males is due to carcinoma of the breast. According to Neal, 1.24 per cent of all carcinomas of the breast occurred in males in his review of 9,279 specimens. The average age is around 57. Sachs reported a case in a boy of 12, and Wainright reported one in a man of 91. The etiology is presumably that of carcinoma occurring in other parts of the body; however, during the past few years, an occasional case has been recorded in which carcinoma of the breast has developed in patients receiving stilbestrol therapy for carcinoma of the prostate. The same also has been reported as developing in women undergoing prolonged stilbestrol therapy for menopausal symptoms. Both of these conditions are subject to the possibility of coincidence, however. Some authors have maintained that development of carcinoma is most probably due to estrogenic treatment. This is doubted by others of equal authority.

It is interesting that carcinoma of the male breast was noted by Ambrose Pare in the 16th century. The symptoms are similar to those of carcinoma of the female breast. Sachs reviews the symptoms of 205 cases. The following was noted: retraction of the nipple, 33.1 per cent; pain in the breast, 38.1 per cent; bleeding from the nipple, 14.5 per cent; ulceration, 20.6 per cent. Presence of a mass in the breast is found in approximately 50 per cent.

The prognosis, as set out by Wainright's work in 163 cases, showed only 19 per cent survival after five years. Sachs, at the other extreme, in his study of 205

Figure 2. Lateral view, papilliferous cystadenocarcinoma of the breast.

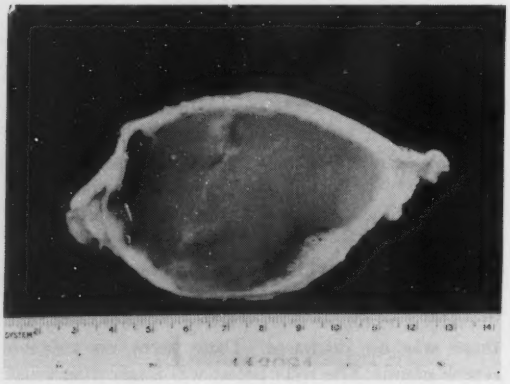

Figure 3. Section of specimen showing papilliferous cystadenocarcinoma in the male breast.

cases showed a five-year survival of 47.8 per cent. In spite of the wide variation in these two studies, the over-all survival in other reports keeps the average at around 20 per cent after five years. This is much poorer than the survival rate in females. This may be explained by the failure of the patient to recognize the symptoms and the failure of the physician to recognize the potentialities of a mass in the male breast with its scant breast substance for surrounding extension before metastasizing.

In Sachs' cases (205), 46 per cent had axillary involvement. Neal's cases showed 32 per cent involvement of axillary and regional nodes when first examined. The duration of symptoms before seeking medical aid in Sachs' cases was an average of 1.14 years. In Gilbert's cases (47), the time elapsed between symptoms and seeking medical aid was 2.05 years.

Other tumors of the male breast to be considered when a mass is encountered are: abscess or other inflammation producing either acute or chronic mastitis, gynecomastia, or mammary hypertrophy. Cysts are extremely rare. Other rare lesions are sebaceous and dermoid cysts, hemangiomas, lipomas, and lymphangiomas.

Summary

A case of carcinoma of the breast in a 79-year-old male is reported. The tumor had existed for seven years. A superficial review of the literature is given. The patient expired four years and two months after the operation, and the cause of death was reported as generalized arteriosclerosis. Physical examination showed no evidence of recurrence or metastasis.

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No group has played a greater part in America than the leaders of industry and commerce. The qualities of those leaders have, however, changed with the times. Each period has had its tensions, and each the men to master them. Today those tensions are greatly compounded by the pace of events. . . . There was a time when a new product hardly affected the household; now business operations may transform the country and indeed, affect the world balance of power.

The fact is, we are not just in business, we are remaking our society, and we are dealing with questions of peace and war.

—John S. Coleman

Psychiatric Care

Benefits Available from Adjunctive Therapists in a Hospital Setting

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A pressing and immediate problem for all concerned with mentally ill patients is learning what treatment they receive in psychiatric hospitals. It is known that a large number of psychiatric patients enter hospitals, receive treatment, get well, and leave. But how a change is brought about defies a ready answer.

We know that tranquilizing pills are given, shock treatment prescribed, psychotherapy carried out, but in few cases do we have a clear understanding of why the patient has changed for the better. Not only do the treatment modalities vary from institution to institution, but also within institutions, from section to section, there may be differences, and from person to person the differences in effective treatment may be great. It is impossible to study adequately all of the available therapies, but attempts can be made to clarify the effectiveness of some.

At the Menninger Foundation we have addressed ourselves to the problem of understanding better one of the accepted psychiatric treatments, adjunctive therapy. We have attempted to clarify what adjunctive therapy is, what it does, and what it should be expected to do. From the experience of our study, I present my idea of the necessary ingredients in effective adjunctive therapy.

Our hospital is a 118-bed, active-treatment psychiatric hospital which carries in addition approximately 40 to 60 day patients. There is an adequate staff of physicians, psychologists, social workers, and nurses, as well as adjunctive therapists. We consider as adjunctive therapists those staff members who are concerned with the activities of the patients which would correspond to their work and play in normal life. They number about 27. Adjunctive therapists include those with training in the manual crafts, sports, recreation, creative arts, group social activities, academic activities, and physical therapies.

As part of a widespread network of projects intended to increase our understanding of adjunctive therapy, the following approach was developed: A working psychiatric team was established about one clinical problem. Thus, it was hoped, a body of knowledge through mutual clinical experience could be developed to define the task of the adjunctive therapist. The staff psychiatrist, as team leader, chose a patient as the subject and sent a memo to all personnel who might be at all interested in this particular patient. The memo stated that on Thursdays we would hold a luncheon meeting to discuss the patient's treatment. The lunch hour was chosen since in our busy schedule there appeared to be no other time mutually available. It was not obligatory for anyone to come. Our interest concerned those feelings and considerations of the adjunctive therapist which could be given only voluntarily without the implied coercion of a directive.

Patients in mental hospitals can often be materially benefited if the services available from adjunctive therapists are fully utilized. Such therapists, as discussed here, include those staff members concerned with the activities of the patients which would correspond to their work and play in normal life.

The patient's background is a follows: She is a 34-year-old unmarried woman who came to our hospital in 1956 after seven years of psychotic illness, paranoid schizophrenia. She is the youngest of three children, having two older brothers, both of whom are married and have made satisfactory adjustments. Her father is a retired, successful business executive, and her mother remains active in many social and community affairs.

The patient was a shy, retiring child who made a satisfactory adjustment throughout high school and in college was an excellent student. Following graduation she became a secretary, and while on a trip to Europe with her father she developed her present illness. Confusion, withdrawal, and paranoid thoughts were apparent at the onset. Since 1948 she has been continually under some type of psychiatric treatment, which has included psychotherapy, group therapy, insulin shock, electroshock, and tranquilizing drugs.

When she came to our hospital in 1956 she felt that there was little hope left for her and expected to undergo a lobotomy. She had numerous tics, talked loudly to herself, showed little interest in the world about her, had poor personal hygiene, and was openly

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This work is not connected with the author's present affiliation with the Veterans Administration and was accomplished prior to July, 1957.

psychotic. On a program of milieu therapy, intended to give her structure and to open for her some avenues of gratification, she showed slight improvement. An attempt at psychotherapy was unsuccessful, and our goal in simplest terms was to help her establish herself outside an institution. Rather than to return her to her relative high achievement prior to the onset of illness, our therapeutic efforts were limited because of the length and depth of her illness.

This particular patient was chosen because of our discrete goals, to discharge her from the hospital in a condition which would allow her to maintain herself in a family care home. Second, the patient was well known to the staff. Third, she had not shown any great swings of improvement or regression but had demonstrated only slight improvement. Fourth, she was seen by the staff in so many different ways that no consistent picture of her was being reported.

In the first meeting our clinical team had little difficulty getting started. Some interesting questions came up which apply more to team operation than to the patient. Several wondered what they had done that was wrong. It appears that one of the natural reactions for the staff, upon learning that a meeting has been called, is to feel that they have done something wrong. Another questioned the fairness of spending so much time on one particular patient. Also discussed was the added responsibility that these meetings gave the staff. Though the questions are interesting, they are digressions from our primary problem, which is understanding the adjunctive therapist.

From experience gained at these regular team meetings, we have a clinical impression of adjunctive therapists, how they have succeeded or failed, and we have clearly learned some lessons. First is the appreciation adjunctive therapists have of the importance of their own conduct toward the patient. This is sometimes called "the use of the self." It is not easy for an individual to discuss himself in a group, but we were not long in reaching the point in our team meetings where the adjunctive therapists could ask if they were right or wrong in certain approaches. The emphasis never was on the patient's accomplishment in the craft; it always remained on what the patient was doing with the adjunctive therapist, sometimes directly and sometimes through the craft.

As a result of our team experience, there appear to be certain qualities or principles which can be seen in adjunctive therapists' work. These principles all lead to enriching their relationship with the patient and enhancing treatment.

The qualities which clearly were part of the work of the successful therapist can be placed under two general headings. First is proficiency in his craft, or special skill, and second is a degree of competency in interpersonal relationships, often referred to as "the use of the self." The first, competency in the specific skill or specialty, is indispensable. If the adjunctive therapist does not know his gross work, he will not be free to go beyond the work in dealing with the patient. The craft should become an ingrained part of the occupational therapist and, as all good tools, a help, not a hindrance, in doing his job. It is not my feeling that the therapist need be competent in all aspects of his field, nor a perfectionist in any particular part; he should be well grounded and secure in the general mechanics of his operation so that he can be free to do his most essential job, working with patients.

Under the second heading, competency in interpersonal relations, the effective therapists were capable of observing in a sophisticated fashion, communicating intelligently, willing to interact with the patient, and possessed of a sense of professional dedication. Rather than leave these qualities as a list of words, we can enlarge upon them from our team's experience.

Observation in its simplest form means merely looking at and listening to what is going on. This is not enough; the therapist should know what he is looking for, and at the same time be ready to see or hear the unexpected. He must know something about the patient, and he must know what the doctor is looking for, as well. One of the reasons the psychiatrist chose the patient was the varied picture she presented to different people, and few realized how differently she was seen by the staff. After a few meetings, they clearly understood that the psychiatrist was interested in knowing how much mumbling and talking to herself the patient did. We came to call this symptom "static," since it literally had somewhat the quality of static on a radio. She could be talking and at the same time carry on a slight undertone of mumbled words. Early in her stay she would do this with the psychiatrist, but as treatment progressed, this symptom left their relationship. He was interested to see where it was still appearing. He was not receiving many reports about this symptom since some of the therapists did not think of the trait as important. They observed it frequently and felt that others did also. Other therapists were not reporting it because it happened infrequently in their contacts with the patient. When they learned that the psychiatrist considered it important as a distorted expression of hostility, they began looking for it in that context. Observation of the patient's mumbling now began to have psychological meaning for them and, more important, gave them a deeper insight into the patient, which in turn allowed for a closer relationship. For the leader to know where the static was occurring proved valuable, since he could continue working with the patient in terms of her presenting symptoms, which superficially she

kept out of their relationship. The observation had gained more meaning for all members of the team.

Another quality of great importance is the ability to communicate freely. Often the therapist feels that he does not have adequate opportunity to communicate since the doctor's ear may not be readily available. This common feeling is best considered by examining carefully what the therapist is prepared to do when he does have the doctor's ear. In our team meeting, we discussed the fearfulness on the part of the therapist to report. The staff, as they grew freer, investigated why the meetings had been called. Were they doing something wrong? The implication they gathered by my request for communications was that they had done something wrong. When someone took an interest in their work, they felt the interest was based on some shortcoming rather than on a genuine desire to implement the patient's treatment. This may not be true of other settings or other teams in our setting, but it was true that our therapists acknowledged a certain defensiveness in their communications.

Another point is to be aware of how much communications can relate to therapists' problems rather than to the patient's problem. Thus, a number of questions asked about the patient and her routine at first glance appeared to be merely inquiries about schedule. It gradually became clear that the question was being asked by the therapist, "Why is the patient not coming to my shop more frequently? Is it because she does not like me?" Again, this was not explicit in the question, but it was the repeated feeling of the therapist in the communication. When he learned that the patient accepted the shop and the work in her own particular fashion, he no longer felt the necessity of asking detailed questions about the patient's routine.

Our therapists were also alert to another quality implicit in communication, and that is the idea that communication is two-way. The therapist has to learn what the doctor means when he says certain things. It is important that he remain alert to the doctor's communications so that he can not only understand the concrete suggestions implicit in what the doctor says but also his style; he can know why the doctor says what he says. This implies a certain amount of relaxed interplay between the doctor and the therapist so that the therapist can explore the communications pertaining to the patient.

Still another point connected with intelligent communications is the ability to give unfavorable reports when they are indicated. This was apparent in the reluctance of the group to come to grips early in the meeting with reports that she had not done well. If her difficulty could be connected to a specific incident, a visit from her family, or a premeditated change, the report came easily; however, when the therapist felt a report must be given in terms of his observations and judgment, it took longer to break the ice. Later, as individuals found the group in accord with their views, exploration of the patient's difficulty never proved hard to carry through. It is necessary for the successful adjunctive therapist to communicate material which may sound unpleasant to others, including figures of authority. If he falters, treatment suffers, and the patient may not improve.

An indispensable quality for success also is a willingness to interact with patients. Somewhere in his makeup, the therapist must be interested in people, how they get well, and what he can do to hasten the process. He need not like all people, nor should he feel that he has to interact with all people. Part of his maturation is his growing awareness that there are some patients with whom he just cannot be useful. With these patients, the work can be left to others. However, to the patients with whom he can comfortably interact, he has the opportunity to be of great assistance.

By "interact" we can mean many things, but a clinical example can serve to clarify our meaning. In dealing with the patient's symptom of mumbling, her "static," the psychiatrist encouraged some of the team to respond directly, remarking on the symptom in a way which would recognize with the patient the presence of the symptom. One therapist was quite reluctant to carry through on the suggestion. He pointed out that she was psychotic and might regress. He wondered whether or not she actually could stand it, and finally said, "I don't know whether I could stand it." He waited a few weeks, and then, after mulling it over, felt a little more comfortable interacting this way with the patient. Quite spontaneously one day, while they were working in the shop together, he found that she was mumbling, and he said, "I know that you are talking, but I can't quite get the words."

The patient's response, the one he expected to lead to regression, was: "Oh, thank you. I know I talk to myself at times and that I shouldn't. I appreciate your telling me."

The patient could accept his intervention, because it came from someone who conveyed in his words, tone, and attitude the genuine interst he had in her. For the therapist it represented a freedom within himself he had achieved by his own work. There was no one there who prompted him in his action; it came spontaneously from his willingness to interact with the patient.

Too often our interactions with patients serve only to infantilize them, and it sometimes is difficult to resist an opportunity for active intervention. Another example underlines the passive aspect of interaction: On a trip to town with an adjunctive therapist, the patient became mildly excited while shopping, and in

the course of paying for a purchase she turned her purse upside down on the counter in her haste to get her money out. The therapist was tempted to intervene immediately and handle the situation for the patient, but because she knew the patient and knew the patient's wish to handle the trip well, she paused long enough for the patient to regain her composure and handle the situation adequately. The interaction in this case was the support the patient felt from knowing that the therapist was standing by to give help if it should be needed. The patient was left with the proper latitude to develop and mature. The therapist had proved herself willing to interact in this way.

The therapist must display a sense of professional dedication. It is a quality which is difficult to pin down, or to teach, and impossible to standardize; yet it is real, personal, and extremely valuable. Though undefinable, professional dedication is part of the "team spirit." It is a sense of professional self-assurance and perspective which not only can be relied upon to carry the therapist through the immediate problems of patient care but also gives him the long range view necessary for a mature approach.

Our patient has shown improvement. She is now out of the hospital, and a great deal of the credit for this success rests on the shoulders of the adjunctive therapists who have shown not only their skill in a particular craft but also keen observation, intelligent communication, a willingness to interact with her, and a persistent drive to know more about their own jobs, so that they could do them better. In present-day adjunctive therapy, these qualities are essential.

Though settings may differ from hospital to hospital, section to section, it is apparent that those patients who are treated by well qualified adjunctive therapists in conjunction with a psychiatric team can get better. Such therapists make a unique and powerful contribution to the patient's welfare, and the value of their help comes directly from their own high personal and professional standards.

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Rehabilitation of the Aged

Importance of Psychiatry in Treatment

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Rehabilitation is the process of helping people live more effectively. This is a prime goal of modern dynamic psychiatry as well as physical medicine. While more specifically the focus of the former is on psychological factors and the latter on physical factors, neither specialty can be separated from the other as long as human behavior is involved.

Three other aspects which these specialties have in common are relevant at this time. First, the focus is on the individual and his problems, not on the problems and an individual. Second, the past experiences and performances of an individual are taken into consideration to explain his present behavior, and it is further recognized that the individual has within himself the potential to modify his future behavior. It is only in this sense that psychiatry can be called dynamic. Third, each specialty is multi-disciplinary in approach. This actually is a function of the complexity of human behavior.

In psychiatry, then, we speak of the psychiatric team which combines and coordinates the skills of the psychiatrist, psychologist, social worker, psychiatric nurse, and aide in understanding the individual and his problems.

This paper is a report of the activities of such a team which makes up the staff of a small, dynamically oriented psychiatric hospital—namely, Prairie View Hospital in Newton. Without each discipline it would not have been possible to have arrived at the conclusions we present here. Our specific interest in the older patient dates back to a staff meeting approximately a year and a half ago in which our aides

Outlined here is the treatment given aged patients at Prairie View Hospital in Newton. A team composed of a psychiatrist, a psychologist, a social worker, a psychiatric nurse, and an aide cooperate in achieving the best possible evaluation of the patient's status on admission and in planning a mode of therapy designed to give maximum help.

presented for discussion the topic, "How should we treat our elderly patients?"

To approach this question one must first examine the thinking underlying our traditional concepts of the aged. This traditional concept is focused on problems as manifested in symptoms and pathology. The individual with these problems is considered only secondarily.

For a long time such symptoms in the aged as forgetfulness, irritability, loss of interest in self and surroundings, wandering off, disorientation, and depression have been related simply to organic changes in the brain.

The basis for these changes most often was cerebral arteriosclerosis or degeneration of brain tissue due to senility. Disorders of the aged have been described categorically in textbooks under organic psychoses, and in the standard nomenclature they come under the heading of chronic brain syndrome.

Where has this thinking led us? Most simply it has led to stagnation—to a limited, static, and nihilistic approach to the aged, especially where care and treatment are concerned. If one is concerned solely with pathology, it means that treatment to be successful is dependent on eradication of said pathology. Where pathology is irreversible or only partially removable, there is a corresponding limitation to treatment goals. Treatment then becomes, at best, palliative; at worst, nihilistic.

Even more disturbing in some ways is the fact that where success is not expected there are no failures. Without failures, no questions are asked and nothing is learned. Where nothing is learned the cycle is relentlessly repeated.

Doesn't this pretty well characterize the traditional approach to the aged person and his problems? Aren't we all too ready to say, "If your abilities were gradually deteriorating and there were nothing you could do about it, wouldn't you have problems too? Wouldn't you worry about being cared for now and in the future? Feel lonely and an outcast?"

Are not relatives all too frequently told, "This is a case of hardening of the arteries," or "You will just have to learn to live with him or have him put away some place." The aged person then becomes a victim of his pathology: nothing is expected of him and nothing is expected of his family or the physician. In fact, a physician who may offer help may even be considered an opportunist.

Our thesis is not that organic pathology plays no part in the disturbed functioning of the older patient, but rather that organicity fails to explain many disturbances of the aged. For example, there are several studies showing there is no direct correlation between symptoms and certain generalized organic brain changes such as arteriosclerosis or senile deterioration. The brains of many clinically "normal" aged persons have at postmortem examination shown evidence of considerable pathology. Conversely, some brains of elderly persons with evidences of psychosis have shown no notable organic changes.

Not all aged persons show signs of clinical deterioration, and when such signs appear there is no close correlation with age. Indeed, age is no barrier to continued functioning, as is most clearly seen in the functioning of some of our elder statesmen. To this list of unexplained problems one can add the question of the high mortality rate of recently institutionalized elderly patients or the frequent reports of almost simultaneous deaths of old couples.

It follows that some other thesis must be found on which to base our understanding of the older person and his problems. It must be less rigid, allow for more variables, and be more comprehensive. It needs to provide a broad understanding of the person with emphasis on his abilities to continue growth, even in the face of liabilities that reality may impose.

The rehabilitation outlined in the introduction is such a constructive, dynamic approach. The very core of this approach, though, is exemplified in a stimulating article discussing the treatment of the chronic psychiatric patient in a Veterans Administration Hospital. The author, Dr. Arpad Pauncz,[25] presents five basic principles that relate to every patient. They are particularly appropriate in relation to the aged person and his problems. They are as follows:

1. *"Still normal" aspects of the patient.* No matter how sick physically or psychologically, there are some aspects of the person's functioning that can be considered normal.

2. *To exist is to persist.* This phrase, taken from Spinoza, as quoted by Pauncz, reminds us that sickness is a reaction of the living and evidence of a struggle for survival.

3. *Duties and responsibilities in spite of sickness.* Dr. Pauncz states in regard to this item, "With the assets of the patient goes a limited degree of freedom of choice between his sickness and health and a certain amount of responsibility for his present and future welfare. He can still react to the environment with sometimes astonishing and unexpected display."

4. *Adult characteristics retained in spite of regression.* No matter how regressed a person's behavior may be, it is only "child-like" and not that of a child. Adult assets, though obscured by this behavior, are not obliterated.

5. *Dignity retained in spite of sickness.* Each person is a human being. Illness can and does afford an opportunity and a challenge to be met. The ability to meet challenges on a psychic as well as a physical level is peculiarly human and not eliminated by illness.

This total approach to the aged person and his problems leads to quite a different formulation. Symptoms now become not a by-product of organic pathology but the result of complex internal and external forces—physical, psychological, and sociological. They are related not just to the present, but even more important, to the past.

The individual's reaction to the specific stresses of aging, including organicity, then, is a function of a life-long pattern of reaction. Present symptoms represent a re-activation of old conflicts by new stresses.

This is the key to understanding the aged person. In reality, this is the key to understanding any individual, irrespective of his age. We are saying, then, that one treats an older patient basically no different from any other patient with a long standing illness.

The application of these principles is demonstrated in the following reports of specific cases. In these case presentations the use of a team approach is demonstrated and the role of the psychiatrist, psychologist, social worker, nurse, and aide in evaluation and treatment is shown.

In the first of these cases it should be noted that by careful history taking and subsequent interviews of the closest relative—by a member of the social service department—a real understanding of basic problems involved in the immediate situation can be gained. Through these same contacts plans can be worked out for future placement of the patient which are realistic and based on a good understanding of the patient.

Mrs. D. S., an 80-year old, married, white woman was admitted to the hospital in the summer of 1956. The referring physician reported her arteriosclerotic for many years, but she had recently presented many more somatic complaints and so much agitation that home management was no longer possible. She was admitted for evaluation and possible placement in a nursing home.

Psychiatric examination on admission showed that the patient was extremely agitated, disoriented, and confused. Memory loss was apparent and nocturnal confusion was present.

Physical examination by the medical consultant revealed much generalized arteriosclerosis. There was also a history of heart disease of many years' duration with a vague report of a stroke one month before admission.

On the basis of the initial findings, with a history of an acute disturbance, a diagnosis of toxic psychosis was made. In the meantime the family was seen for interviews by social service. Here it was learned that the patient and her husband were living alone in their own home with an only daughter living near by. The patient depended considerably on this daughter for help in running her own household. The onset of somatic symptoms in the patient coincided with the daughter's announcement of plans for a long trip in the near future. The patient's physician had to prescribe sedation as the symptoms increased. The sedative turned out to be the cause of her acute psychotic reaction.

The picture became more complete as we learned that the patient had always been concerned about security, financial and otherwise, and that she had always depended a great deal on her daughter and those about her.

Treatment was directed first of all toward management of the acute reaction. As this cleared, the patient then was introduced into the hospital program, which included assuming more responsibility for herself, dressing, caring for her room, work assignments which involved housekeeping chores, occupational therapy, and recreation. She participated in group psychotherapy.

The patient's family was seen by the social worker throughout her hospitalization. Through this means they were able to come to understand their role in the patient's illness and to make plans for her return home. The patient was able to gain sufficiently from this program to become symptom-free and return to her home and make a satisfactory adjustment, as noted by follow-up contact several months later.

In the second case the importance of the role of the psychologist and his psychological testing is clearly demonstrated. It was through such testing that a real appraisal of the problems was started. This patient did not remain in the hospital long enough for adequate treatment, and it can be seen also that the hopelessness in the attitude of the husband and the referring physician were involved in her leaving before adequate treatment could be carried out.

Mrs. Z. C. was a 74-year-old, married, white woman who was admitted in the fall of 1956. The referring physician reported that she was forgetful, not as orderly as before, disagreeable, and could not recognize her own husband. The physician stated, "I am in doubt about her responding to treatment, but her husband wants the best for her." The husband of the patient reported to the social worker that he felt her mental disorder was hereditary since her grandfather and father had had the same difficulty, and he consequently felt little could be done for the patient. He sought her admission only because of his son's insistence.

In her initial interview with a psychiatrist, Mrs. C. appeared to be a sweet, friendly, but confused old lady who offered the physician fifty cents for the collection plate. On the ward she appeared equally confused and incapable. On psychological testing, however, it was learned that there was almost no evi-

dence of organicity in this person. If anything, only minimal memory loss was present. Here the patient was confronted by a new situation where performance and not verbal production was tested. In this unfamiliar medium she had no prepared defenses, and organic brain damage was not found.

On the ward, then, some of her confused statements were challenged, and she was found to be an extremely demanding person who developed temper outbursts and somatic complaints. The social worker also learned that since childhood this patient had always gotten what she wanted by being sweet, but if this failed she would throw a tantrum to succeed. She was "the flower of the family" who did not have to work in the fields as the other sisters did. When her acute symptoms started her husband was in the process of retiring and was planning on spending more time with his wife.

After about three weeks of hospitalization the patient's husband insisted on her release since he felt his wife could not be helped.

In the third case an organic problem was first found and was alleviated through medications. Then an adjustment problem of several years' duration was found which could also be alleviated through a team approach.

Mr. A. J. was an 80-year-old, married, white male who was admitted in the fall of 1956. For a week or so before his admission his wife had noted confusion, especially at night, and wandering away from home. On initial psychiatric interview he appeared to be somewhat resentful of his hospitalization. He complained of poor memory and talked frequently of dying. On the ward his periods of intense confusion were noted to be definite enough so that they could be timed and were found to last from ten minutes to one hour. A diagnosis of a convulsive disorder was made, and treatment with Dilantin was prescribed. Following this the confusion diminished and his hospital adjustment improved considerably.

The social worker learned from Mrs. J. that the patient has always been a successful man who worked hard and educated his children properly. He had been active until seven years prior to admission, when he developed heart trouble and had to cut down on his activities. Since then he had become suspicious and developed many physical complaints, as well as poor sleep habits, all of which his wife found intolerable. This behavior was noted only when he was at home, so it became apparent that his wife also would have to be involved in the treatment program.

The patient was started in individual and group psychotherapy with one of the psychologists. Through therapy for both the patient and his wife, the adjustment of Mr. J. improved.

Psychological testing of Mr. J. revealed intense organic brain damage when he was admitted. When it was repeated after several weeks, it showed only mild organic damage. In this case the tests were valuable in providing an index of improvement as far as organic factors were concerned.

As we applied these principles to more and more patients our enthusiasm grew. At one point we naively thought we had arrived at a new approach to the aged person. When we turned to the literature we found that for many years articles had been written suggesting that more than organic brain changes are involved in the psychiatric problem of the older patient. In fact, in Ebaugh's article on "Age Introduces Stress Into the Family" in the April, 1956, issue of *Geriatrics,*[9] the author quotes Cicero as saying that "those with simple desires and good dispositions find old age easy to take. Those who do not show wisdom and virtue in their youth are prone to attribute to old age those infirmities which are actually produced by former irregularities."

In a survey made by Dunham and Faris in Chicago in 1939,[11] the authors conclude that "older people in poverty situations and in communities of disorganized family life are more likely to be identified as psychotic cases than those older persons who live in more acceptable economic surroundings and still enjoy a fair degree of familial support."

Similar conclusions were reached by Busse and Bains in a survey they made in 1951.[6] They felt depressions were more prominent in lower socio-economic groups and that aged people requiring hospitalization were almost devoid of any creative or recreational interests. The authors concluded that the adequacy of adjustment in the elderly is largely determined by strengths and weaknesses developed much earlier in life.

Attempts have been made to correlate the degree of brain pathology at postmortem to the severity of symptoms in older patients, as was done by Raskin and Ehrenberg in 1956.[28] They concluded that the degree of brain atrophy was not always indicative of the patient's mental deterioration and made a plea for keeping older persons motivated.

In 1948 Maxwell Gitelson published a comprehensive article on "The Emotional Problems of Elderly People."[15] Here he discussed such elderly people as individuals and suggested that "the mature character of a person determines how he will react to old age." He described various conditions and recommended various therapies, including supportive psychotherapy.

If it has been known for so long that organic brain damage alone is not responsible for psychiatric problems of the aged, why then the widespread feeling that persons over 65 who suffer from mental illness have organic troubles and are incurable? Several articles have been written concerning this negative atti-

tude towards the aging. The authors base this attitude on our own unresolved problems regarding older persons, helplessness, and death. Surely if this stage of life is solely a state of inevitable deterioration, it can be nothing but frightening and entirely negative.

The principles of rehabilitation as outlined here point to a new way of thinking about living and its problems. For the aged person, these principles mean that his life can be more than an existence, more than simply a continuation of living.

For us they mean a change from therapeutic nihilism to therapeutic optimism, as well as pointing the way for future control and prevention of these problems.

Therapy, utilizing these principles, is basically no different from therapy for any other psychiatric problem. The goals may be more limited, but this limitation is a product of the individual and his assets, not determined by his liabilities or pathology. Techniques, in turn, may vary, but here too fundamentals do not change.

In regard to technique, failures in therapy of the older person stem, in a large part, from technical failure—technical failure resulting first of all from not taking these patients seriously and second from moving into a complex field without sufficient help. Sufficient help means to us the coordinated team approach to treatment.

A word on prevention: If we can say that a relatively high degree of maturity is the best insurance in meeting the stresses of later life, just as it is for other periods of life, prevention then becomes a matter of fostering maturity, earlier. This subject is not in the province of this paper.

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PRESIDENT'S PAGE

DEAR DOCTOR:

Rarely, in the span of a single life, do signal honors arrive. When they do, the usual phrases, with which we note them, seem trite. Please know that I am humble in the face of the splendid leadership this Society has enjoyed in the past, and that I pledge you my best efforts in the year that lies ahead.

I hope that all of you have read carefully Dr. Nelson's message on the President's Page for April. He speaks with clarity and comprehension of the role of our profession in the world today. It is the deep conviction of many of us that the statesmanship of tomorrow will come, in increasing measure, from the American physician, who honors the freedom and dignity of every man he serves.

Those of us so fortunate as to live in the Middle West still enjoy a relative immunity to forces that in some areas would destroy the fundamental institutions of democracy. Our personal responsibilities in defense of American principles may prove to be very great, and they can be made effective. A sense of these responsibilities should underlie the work of this Society, its committees, and its officers, as the year's program is undertaken.

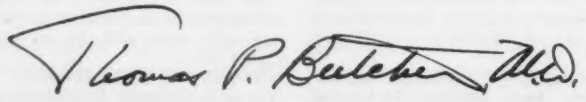
You have been most gracious in your acceptance of committee chairmanships and appointments, and these are now complete. It is anticipated that each of you will make every reasonable effort to respond to the call of your chairman.

Matters of agenda are now under consideration, and a number of suggestions as to plans for the year are being submitted to the House of Delegates. The following items deserve special consideration and are therefore mentioned here:

1. *The Centennial.* On February 10, 1959, the Kansas Medical Society will be 100 years old. The committee plans commemorative events looking to the past and the future and culminating in the state meeting in May of 1959.
2. *The National Rural Health Conference* is to be held in Wichita in March, 1959. This is a high spot in our Centennial program.
3. *Standards for Small Hospitals* (under 25 beds). The doctors concerned have asked for help in assuring the quality of service that will protect against the accidents peculiar to inadequately equipped and staffed institutions, recognizing also that such standards would provide substantial defense in the event of malpractice action. (Hospitals Committee.)
4. *Legislation.* Constructive efforts are anticipated with reference to highway safety, driver qualifications, farm implement hazards, sanitation, Workmen's Compensation, protection of eyesight, child welfare, etc.

Finally, I solicit your help, your comments, and criticisms, and look forward to the privilege of working with you in the year ahead.

Sincerely,



President

EDITORIAL COMMENT

Renaissance and Plateau

The scientific sessions for the American Heart Association have just been completed. From a study of the presentations and abstracts one can gain a fairly comprehensive idea of the nature and direction of research activities of most American cardiovascular specialists and laboratories. Allowing for the fact that certain investigators may wish to present their work before other groups (biochemist, pharmacologist, surgeon), nevertheless, by noting authors' names and institutions represented, one appreciates that the abstracts are a fair sampling of our cardiovascular research efforts.

Two hundred seventy-five abstracts were submitted. The abstracts are, of course, only a capsule voice for the clinicians and investigators, and their significance must be confirmed by that other inherent value of the medical meeting: the foyer or lounge abstracts. I am referring to that other (perhaps more important) reason for the annual meeting, the rapid and easy exchange of news, ideas, and gossip outside the lecture hall. The necklace would be skimpy indeed if the pearls came only from the lectern.

From the combination of printed abstracts and personal contacts, one is led to a sobering judgment. The American cardiologist, both clinician and investigator, currently on the scene and in leadership position, is in need of a new "bag of tricks." We have used the tools of our trade, the stethoscope, the electrocardiograph, the phonocardiograph, the catheter, the knife, to near their productive limit. True, advances and refinements will continue in these areas. Wider application of knowledge already gained is needed. However, as primary methods of investigation and diagnosis, their potential has reached a distinct point of decreasing return.

The renaissance of cardiology, beginning with the ligation of the patent ductus by Gross, has reached a plateau. In the years following his stimulus, an exciting, tumbling series of new ideas came on the scene: right heart catheterization, stabilization of electrocardiography under Wilson, the "team" expanding to include the cardiovascular surgeon, the meticulous auscultation which was developed by the cardiologist if he was to remain a necessary member of the team; needles inserted, pressure measured, and contrast dye injected in any and all chambers and vessels, electrolyte imbalances appreciated. . . .

Great and important advances have come. The final objective, the patient, has distinctly and permanently benefited. The grateful (and still concerned) public has made available to us immense sums of money. Our work is carried out in secure and appreciative environments.

In these two decades since Gross' work and especially this last decade, a new breed of cardiovascular specialist has appeared on the scene. His predecessor, the pulse-feeling, whole-leaf, conservative clinician, found himself throughout the country hard-pressed and jeopardized by catheter-pushing, twelve-lead, aggressive young men. This new cardiologist has been successful and with the tools of his trade, in association with equally aggressive young surgeons, he has refined old ideas and defined new ones. With his catheters, galvanometers, transducers, x-rays, oxygenators, and ice, he has left an indelible, secure record.

But history repeats itself. This new cardiologist (and I include myself) finds that the tools of his profession are becoming dated. We find ourselves at a mid-point in our careers, faced with the fact that the remaining unanswered problems of disease (not only in our own specialty) are not to be understood nor solved by the tools we have at hand. We have analyzed and documented and treated to almost our outside limit. Our vocabulary which includes ventricular gradient, mean pressures, and potassium is not sufficient to converse with the new frontiersman: *the enzyme chemist.*

The analysis of disease and therapy has progressively moved through gross morphology, microscopic morphology, pharmacology, and physiology. We are in an era where disease processes are being analyzed and described at the intracellular level. The individual with this unique skill is currently far ahead of his clinical associates, so far ahead that we clinicians cannot even converse with the enzyme chemist, much less guide or direct him.

We have had our renaissance. We are on our plateau. The era of the enzyme chemist is here. He offers a powerful, difficult research method. We in cardiology, as individuals and as responsible administrators, need to take stock and re-equip ourselves in the methods and potential of this new field. Our funds and our efforts must be applied in this area which is the future of medicine; the path upward from the plateau will be strewn with electrokymographs, vectorcardiographs, and second generation cardiologists.—*E. Grey Dimond, M.D., Professor and Chairman, Department of Medicine, and Director, Cardiovascular Laboratory, University of Kansas Medical Center.*

Committees for 1958-1959

Elsewhere in this issue will be found the committee appointments for 1958-1959 (page 246).

Statistically it may be seen that Dr. Butcher appointed 491 physicians to serve on 38 committees.

Geographically the committee appointments come from almost every county in the state with the major number of course being selected from the more populous cities. Scientifically the committees embody every specialty in the field of medicine, including that of general practice.

The above tells only a portion of the story because each of these have something in common. They have been appointed to carry forward the projects of the Kansas Medical Society during the coming year. They represent more than one-fourth of the membership of the Society, and from this group will come the genius and inspiration for the events of the future.

Already in the planning stage are great ideas for the celebration of the centennial, the writing of a commitment law for hospitalizing patients with mental illness, the creation of a Kansas Joint Hospital Commission, changes in Blue Shield programs, the preparation of a relative value fee schedule, the inauguration of a completely new project in the field of gerontology, the adoption of a code of cooperation between the legal and the medical professions, and many others. Those are examples of projects already under way. The future is limited only by the interest of the members.

Dr. Thomas P. Butcher, Emporia, president, wrote a letter to each member of the Society asking for suggestions as to committees on which they would enjoy serving. Many replies were received, and the president appointed every such person to the committee of his choice. He next selected the chairmen and asked each of them for suggestions. Here also many were received and complied with unless the member had shown an interest in some other committee or unless other complicating factors arose.

Dr. Butcher wishes now to announce to the membership that the present list of committees is not static and that he would still be pleased to add to this printed list the names of any physicians who are willing to serve. It would require only a note expressing an interest in a subject for the appointment to be made.

Another change will be the addition of more committees as the year progresses. This regularly happens, and what those committees shall be appointed to do cannot now be anticipated. Here also Dr. Butcher will be pleased to have suggestions of new subjects either to be assigned to existing committees or for the creation of new committees.

These physicians will make a great contribution to the Kansas Medical Society as well as to the people of this state in the many hours of planning they will give in behalf of committee effort. During the past year almost every committee of the Society met at least once. A number of committees met four times. Several committees divided their work with sub-committees, and all gave generously of their time and of their ability toward making medicine in Kansas of higher quality and more effective service. It is planned that the pace of committee activities will be accelerated in the coming year.

Directory of Kansas

Mr. Paul R. Shanahan, secretary of state, published a new directory of Kansas which contains much fascinating trivia along with items of historical import. Among items that may be something less than universally known are the following unrelated but perhaps entertaining facts.

If the United States were carved out at an equal thickness all the way through, the balance point would be near Lebanon, Kansas. If the same thing were done for the North American continent, it would balance at a point in Osborne County.

There are 13 first-class cities, 85 second-class cities and 515 third-class cities in Kansas for a total of 613 incorporated cities, of which six are astride county boundaries. There are 105 counties, 6 congressional districts, 40 state senatorial and 125 legislative districts, 1,552 townships, and 2,976 election precincts.

There are not less than 100 state boards, commissions or councils in Kansas, ranging from the Board of Abstractors, the Academy of Science, the Highway Commission, the State Park and Resources Authority, and the Port of Entry Board, to the Water Resources Board, the Wheat Commission, and Workman's Compensation.

The state population was 2,081,654 as of March 1, 1957. The largest county population was Sedgwick with 312,131, the smallest Greeley with 1,893.

Kansas became a state on January 21, 1861, and in November of that year Topeka was voted the capital city. The statehouse was started in October 1866 and after many hazards, including a subterranean stream, financial, and many other problems, the building stands today 304 feet high from the dome to the sidewalk. At one time each office contained a "handsome porcelain bathtub and a washstand of pure white marble." In 1867 corn was planted on the statehouse grounds, and a fence was added in 1880 to keep stray cows from trespassing.

The statehouse cost $3,200,588.92 as compared with the new 12-story, 180-foot tall state office building containing 540,000 square feet of space which was built at a cost of $8,600,000.

The state flag is a blue field with a large golden sunflower and the state seal. The familiar "Ad Astra Per Aspera" is the motto. The design of the seal features 34 stars, that for Kansas being the newest. The bar or wreath represents the Louisiana purchase, the hills in the background somewhat glorify the

terrain near Fort Riley. The steamboat represents early navigation on the Kansas River. The buffalo, Indian, the open prairie schooners, the cabin and the plowman, all featured in the seal, represent the history of this state.

And there is more. This directory shows Charles Robinson of Lawrence to have been the first governor of Kansas, Joseph Pomeroy Root of Wyandotte to have been the first lieutenant governor, and John Winter Robinson of Manhattan to have been the first secretary of state, all of them having been elected to a term beginning in February 1861.

What this directory does not show is that each of the three highest officials of Kansas when it began its statehood was a doctor of medicine and that each was among the incorporators of the Kansas Medical Society who appeared before the territorial legislature and obtained a charter on February 10, 1859.

THE KANSAS PRESS LOOKS AT MEDICINE

Editor's Note. In this section the JOURNAL *reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

Seek Care for Aged

Most health authorities agree that one of the major problems facing the nation in the future is the question of how to care for aged persons.

The reasons this is a problem and will grow in its need for solutions are three-fold:

First, persons are living longer because of the great rise in living standards and in health standards.

Second, persons who once would have died of diseases before reaching their 70s or 80s now survive because of the wonderful medicines and surgical techniques available.

Third, because of the changing pattern of family life few modern homes have the space to care for aged parents.

Because of the growing importance of this whole area of health and social welfare, it is good to see that four large health organizations are planning to coordinate their efforts to seek adequate care for the aged at reasonable costs.

The American Dental Association, American Hospital Association, American Medical Association and American Nursing Association decided this week to establish a "joint council to improve the health care of the aged."

One of the objectives of the council will be to work with insurance groups to improve coverage of the aged and to see to it that their insurance dollars go farther.

This is a worthy effort. Surely the fact that these groups are awakening to the needs of elderly folks should alert the rest of us to the problem. It may very well be that in the 1960s it will be the major concern in our national life.—*Wichita Eagle, April 9, 1958.*

Free Medicine Can Make You Sick

Efforts to inject government into medicine on an all-inclusive scale continue. It is argued that this is the only way that the best and most extensive medical care can be provided for all the people.

Many people sincerely believe this. But all the evidence indicates that their faith is misplaced—as Dr. Charles G. Jones, a Pennsylvania surgeon, points out in an article appearing in the February issue of *The Freeman.*

Dr. Jones' compelling article has a vivid and dramatic title—"Free Medicine Can Make You Sick." He bases it on the experience in England, where "free" socialized medicine has been in effect for some years. The cost to the British taxpayer has been enormous. Still more important has been the cost in terms of the public health.

Dr. Jones says this: "The deleterious effects of the system are to be noted everywhere. There are so many free dental patients that dentists no longer have time for their customary work with school children. . . . Waiting lists for admission to hospitals become staggering. The increased volume of patients invites second-rate care for many instead of first-rate care for the truly ill. The burdensome cost of caring for those who are ill, plus those who pretend, leaves no funds for research or preventive medicine."

Compulsory government health insurance, which is and has been advocated in this country, would produce identical results. There is small doubt that it would ultimately end in socialization, on something resembling the British pattern. We'd pay an exhorbitant price for it—in money, and in inferior medical service.—*Goodland Herald, March 20, 1958.*

Blood Bank at Marysville

The new Marysville Community Hospital has entered into a cooperative arrangement with the Omaha Regional Office of the American Red Cross for the establishment and operation of a storage blood bank at the hospital. The Red Cross will send in a bloodmobile unit to draw blood and keep a representative supply of fresh blood at the hospital.

Maternal Death Study—Case History

The following cases are presented together because of their similarities.

Case 1: The patient was a 42-year-old gravida 3 para 2 who reported for prenatal care in the third month of the final pregnancy. Her general physical condition was normal and usual laboratory procedures were carried out and were within normal limits. Diet was good and adequately supplemented. The only unusual item in the situation was that the previous pregnancies had been almost 25 years previously. No complications were noted during five subsequent office visits which brought her into the eighth month.

She continued her work of part time bookkeeping in her husband's grocery store until the day of her death. On that day she complained of a headache but continued working. She fainted suddenly and was immediately taken to the local hospital, a distance of a few blocks, where the physician saw her without delay. She continued unconscious; the deep reflexes were absent and the pupils were dilated. Blood pressure was 130/80 and pulse was slow. Despite oxygen, fluids and stimulants (terminal), she died about two and a half hours after the onset. A healthy, six-pound male infant was delivered by postmortem section.

The physician assigned the death to "cerebral hemorrhage due to rupture of a cerebral aneurysm." No autopsy was performed.

COMMITTEE ACTION: The committee, while agreeing with the diagnosis of an intracranial hemorrhage, felt that specifying it as the rupture of a cerebral aneurysm was not justified without autopsy. However, it felt that the patient's health did not warrant any advice against pregnancy, that her general course was normal and adequately attended and did not give warning of the impending accident, and that the final episode was as well managed as possible especially considering the delivery of a live baby. Although the hemodynamics of pregnancy undoubtedly influenced the course of the condition, the accident might have occurred at any time and obstetrical care could not have altered it.

CLASSIFICATION: MATERNAL, NON-OBSTETRICAL, NON-PREVENTABLE DEATH.

Case 2: This patient was a 29-year-old gravida 4 para 3 who began her prenatal care in the fourth month. Physical findings, laboratory tests and prenatal course were normal. The only deficiency noted was failure to report for care during the two months prior to the date of confinement.

Two days after this date. the patient complained of headache; on the following day, within two hours, the headache became much worse and she became disoriented and began to convulse. She was admitted to the hospital where the blood pressure was found to be 110/76, urinalysis was normal and spinal tap produced grossly bloody fluid. Consultation with a qualified neurosurgeon was obtained and the opinion was "subarachnoid hemorrhage, terminal. Surgery not indicated." A few hours later, Cesarean section was performed in order to save the baby and a six-pound, one-ounce baby in good condition was obtained. The patient was sustained for five days but died without improvement. Autopsy confirmed the diagnosis of a massive subarachnoid hemorrhage.

COMMITTEE ACTION: The committee noted the failure of the patient to be seen frequently in the last weeks of pregnancy as a departure from good obstetrical care although this did not necessarily influence the outcome and the physician may have been unable to alter the situation. The adequate coverage of the final illness and delivery of a live baby were commended.

CLASSIFICATION: MATERNAL, NON-OBSTETRIC, NON-PREVENTABLE DEATH.

(Two of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.)

THE MONTH IN WASHINGTON

Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.

The recession continues to influence the course of much legislation, as Congress points toward the wind-up of its session. Even in the health fields, bills that promise in one way or another to alleviate unemployment appear to have priority. At the same time, federal departments are favoring construction grants to projects that can be started without much delay.

Here are some of the developments:

1. Liberalizations in unemployment compensation and in social security are receiving constant attention on Capitol Hill. At this writing, the bill to extend the period for unemployment compensation payments is making progress. There is the possibility also that it will make participation mandatory for all employers.

Prominent among proposed changes in the social security program itself is the Forand bill for free hospitalization and in-hospital medical care and surgery for persons entitled to social security benefits. It is being pushed by the AFL-CIO and by some liberal Democrats, and opposed by the American Medical Association and a growing group of other organizations. The opposition is convinced that the Forand bill is unnecessary, that it would be far more costly than anticipated, and that it would point the way to a broad national medical care plan for all persons covered by social security.

2. A controversial bill to vastly increase money available for grants for community facilities—waste plants, hospitals, state medical schools included—is active in Congress. One proposal is to vote a billion dollars, to be lent out (at about 3½ per cent interest for 50 years) to communities. The objective here, as in many other measures, is to put people to work on construction projects.

Federal agencies have evolved a number of schemes to get U. S. dollars into circulation faster, and are attempting to work out others. In each case described below, no additional appropriation is involved; money is shifted from a project that is getting a slow start to one that is about ready to begin construction. Also, all totals given represent amounts to be spent by the sponsors as well as the federal government. Here are arrangements already made:

1. In January, the Hill-Burton hospital construction program called for U. S. grants to start buildings valued at $381 million; this figure has been stepped up to $405 million by July 1.

2. Between January and July 1, the original plan was to allocate enough money to start $120 million in construction for health research plants. This has been increased to $182 million.

3. Before the recession became so prominent an issue, the plan was to grant enough U. S. money to start construction of $170 million in sewage plants. Under pressure, the total has been increased to $215 million.

In most cases, when a project is delayed and thus loses its allocation, the grant is re-scheduled for next fiscal year.

American Medical Association is one of the four sponsors of a new Joint Council to Improve the Health Care of the Aged. The others are American Dental Association, American Hospital Association, and American Nursing Homes Association.

The council already has authorized research in a number of directions to (a) analyze the health needs of the aged, (b) appraise available health resources for them, and (c) develop the best possible health care for them, regardless of their economic status.

Effects of this united front action should be felt when Congress takes up the Forand bill and other legislation pointed toward relief for the aged.

The American Medical Association is asking Congress to strengthen the Civil Aeronautics Administration's medical department so it can properly supervise fliers' physical examinations and advise on other aviation medical matters. The A.M.A. also is recommending that an office of civil air surgeon and a medical research laboratory be established within CAA.

Congress has under consideration several plans for reorganizing the Defense Department, two of which would result in elimination of the office of Assistant Secretary for Health and Medical matters.

Progress on appropriations bills indicates more money for research at the Institutes of Health, and at least $121.2 million (the same as this year) for Hill-Burton hospital construction.

Andrew Biemiller, top legislative man for the AFL-CIO, told a recent delegation just returned from visiting Capitol Hill: "Congressmen are falling all over themselves in wanting to do something in the recession. I think we can cash in on this."

Testifying before a House appropriations subcommittee, Secretary Folsom said coverage under major medical insurance has gone up almost 20-fold in the last five years.

Kansas Psychiatry—The Way Ahead

This is the first of a series of articles prepared by the Committee on Mental Health of the Kansas Medical Society for publication in the JOURNAL. The intent of these articles is four-fold: (1) to bring usable and practical psychiatric understanding to physicians in other fields; (2) to inform Kansas physicians of psychiatric resources in Kansas and how they may be used; (3) to further mutual understanding between psychiatrists and their medical colleagues, and (4) to help in some measure toward more and better psychiatric services for the people of our state.

For many years psychiatry was a backward specialty and the main purpose of psychiatrists was to keep disturbed patients quarantined and cared for. Today this aspect of psychiatry has been reduced to a minimum; most psychiatric patients can be treated and benefited in a relatively short time if they are seen early enough. Seven or eight times as many patients now enter our state hospitals and are discharged within a few months as used to enter in a year. Besides this, far more outpatient facilities are available. But the difficulty is the shortage of personnel, from physicians on down, that is necessary for the care of patients.

Kansas suffers, as do all other states, from an insufficient number of trained psychiatrists, psychiatric nurses, psychiatric social workers, and clinical psychologists. These four disciplines provide the backbone of both hospital and outpatient psychiatric practice. Adjunctive therapists* and high quality aides are also necessary in greater numbers. Adequate psychiatric service can never be provided, in or out of hospitals, until these numerical deficiencies are remedied. Fortunately, Kansas is doing something about this.

In Kansas, the Menninger Foundation, the Veterans Administration, and the state of Kansas have established the largest single residency training program in psychiatry in the world, the Menninger School of Psychiatry. The University of Kansas School of Medicine has likewise taken steps to provide more and better training for doctors in this specialty, as well as for personnel in the related disciplines. The Five-Year Residency Program—a Kansas innovation—has already improved the quality of care in all of our state institutions. Affiliates from various nursing schools and from the University of Kansas School of Social Work also receive part of their training at Topeka State Hospital. Senior medical students from the medical school are assigned to Topeka State Hospital and gain further insight into the understanding, care, and treatment of the emotionally ill in preparation for their practice. Some of these social workers, nurses, and doctors have chosen to continue in this field, partly because of their experiences in Topeka. Graduates of the Menninger School of Psychiatry, and of the Kansas University Residency Program, have gone into private practice in Kansas City, Topeka, Wichita, and elsewhere. Outpatient clinics manned or supervised chiefly by personnel trained in Topeka and at the K.U. Medical Center are conducted in Lawrence, Atchison, Manhattan, Topeka, Osawatomie, Wichita, and Larned.

Progress in Kansas during the past 12 years has thus been remarkable, both in the quality of psychiatric services and in the number of doctors and other trained personnel remaining and practicing in Kansas. The heart of psychiatric care will always be in its hospitals and training centers, and only by strengthening these can one hope to move on to the other great needs in Kansas: (1) outpatient services throughout the state, including psychiatrists and psychologists in private practice and in free or part-pay clinics; (2) adequately staffed psychiatric wings of general hospitals, and/or private psychiatric hospitals elsewhere than at present; (3) psychiatrists with time enough and—geographically available enough—to work more closely with social agencies and with lay organizations such as the Kansas Association for Mental Health, and (4) sufficiently well-trained psychiatrists with more time to effectively help their front-line colleagues—the general practitioners and other specialists—to more deeply understand, help, and appropriately refer those whose emotional illnesses are in the early stages. It is only by means such as these that prevention can become tangible and the greatest good rendered to the citizenry as a whole.

The success of this necessarily long-term program depends upon the cooperation and concern of all the medical profession.

Prescott W. Thompson, M.D.

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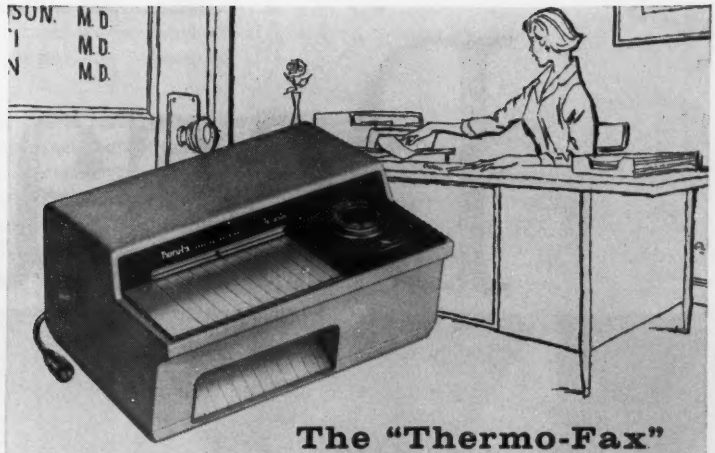
* A comprehensive term for occupational therapists, recreational therapists, music therapists, and other trained professional staff persons similarly employed.



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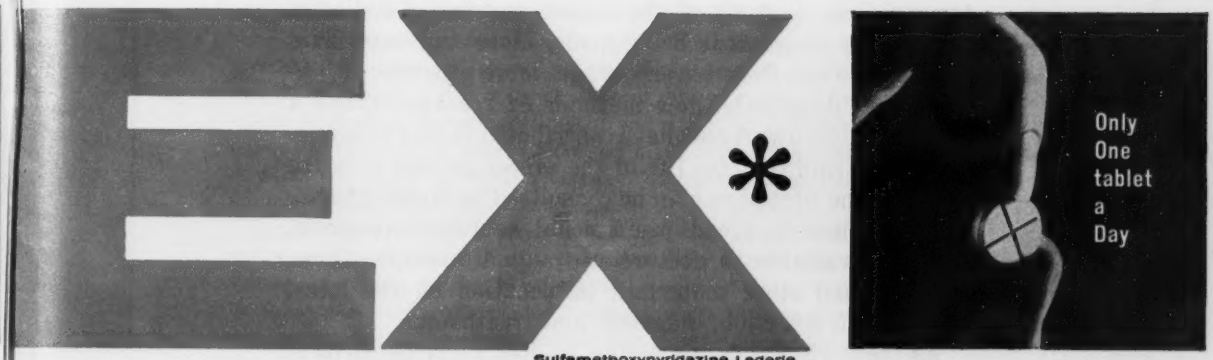

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References: 1. Grieble, H. C. and Jackson, G. G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958. 2. Editorial *New England J. Med.* 258:48-49, 1958. 3. Jones, W. F., Jr. and Finland, M., Sulfamethoxypyridazine and Sulfachloropyridazine. *Ann. New York Acad. Sc.* 60:473-483, 1957.

*Reg. U. S. Pat. Off.

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THE ENCOURAGEMENT OF PROGRESS

The American Cancer Society's annual Spring Crusade is the climax of its year-round attack on cancer through research, professional and lay education, and service to the stricken. A study of the cancer scoreboard indicates that steady progress is being made. More and more lives are being saved. Progress encourages more progress.

Earlier diagnosis, new methods of treatment and a greater public awareness have contributed to this progress. It is often said that the life of the cancer patient is in the hands of the first physician he consults. The Society, therefore, conducts a broad professional education program, making available to doctors, through literature, films, exhibits, and other materials, information on the latest advances in detection, diagnosis and treatment.

As the Society aids the doctor, so does its large corps of volunteers aid the cancer patient with dressings, transportation, home care, medication and a host of other vitally needed services.

For the past two years, the theme of the Society's annual Crusade has been "Fight Cancer with a Checkup and a Check." That Americans everywhere are learning the value of the annual health checkup in the fight against cancer, is evidenced by the fact that doctors report they are now seeing more cancer in its earliest stages than ever before.

That American men and women have a personal stake in the program of the American Cancer Society is demonstrated by the public's generous support of the Crusade. This year the goal is $30,000,000 and we are confident that our people will meet the challenge... will "fight cancer with a checkup and a check" in the encouragement of further progress.

Lowell T. Coggeshall, M.D., *President*
American Cancer Society

ACTH and Cortisone

Many are the clinical benefits of the pharmacological actions of adrenocorticotropin and cortisone as the active therapeutist knows, and yet as with so many potent agents, untoward effects may ensue with their use. Frequently the benefits are extolled, while the complications and hazards are but briefly dwelt upon. Dr. Robert A. Good highlighted this particular point by relating his group's experience in this regard to the participants of the 22nd Ross Laboratories-sponsored Pediatric Research Conference. In the capable hands of these investigators, 35 patients out of a series of 340 patients on steroid therapy suffered consequences that were serious enough to threaten the lives of the children. This is an incidence of approximately 10 per cent.

As all are aware, administration of ACTH or cortisone, or their analogs, at times, may so disturb the electrolyte balance of the individual by retention of sodium and chloride that generalized anasarca with pleural effusion and pulmonary edema may supervene. As this occurs, the concomitant loss of potassium may be severe enough to cause such an overall deficit that at the cessation of therapy a state of hypokalemia with shock ensues. Listlessness, abdominal cramping, and abdominal distension may symptomatically reflect the hypokalemic state without shock. Parenteral replacement of the potassium does not effectively enhance the intracellular concentration, and may only raise the serum potassium level to an alarming degree.

In individuals in whom there is an existing renal complication, such as the nephrotic syndrome, hypertension with or without convulsive seizures may develop. Indeed, convulsive seizures may develop in patients where no renal disease exists at all. As the blood lipids are shown to be concentrated in steroid treated patients, there exists the possibility that the integrity of the vascular system may be jeopardized. The appearance of arteriosclerotic complications after long term treatment deserves consideration.

Long term steroid therapy, as in cases of rheumatoid arthritis, frequently results in a disturbance of calcium metabolism. Osteoporosis results with subsequent pathologic fractures. In this class of patients, since the steroids do influence the cellular life of mesenchymal cells, polyarteritis nodosa may develop as an adverse end result.

Central nervous system disorders such as paranoid schizophrenia and status epilepticus have been known to appear. And perhaps of some theoretical interest is the experimentally demonstrated fact that the steroids enhance the effect of oncotic agents, and will persuade tumors that do not normally metastasize to do so in their presence.

However, the most serious untoward manifestation of these agents is their "masking" potential which permits infection in the absence of symptoms to become established and silently proceed until a truly life-threatening hazard exists. Most commonly the gastrointestinal tract is the system involved. Perforation with peritonitis is not of rare occurrence. Ulceration with hemorrhage in this system is also of some frequency. Susceptibility to infection is readily established even with moderate doses over a short period of time. While staphylococcal infections such as staphylococcal septicemia, cellulitis, pneumonia, etc. are listed most commonly, other organisms may also flourish.

It is clear that adrenocorticotropin and cortisone must be used with caution, and constant critical evaluation of the patient's progress is required.

This is one of a series of articles prepared for the JOURNAL by the Committee on Child Welfare of the Kansas Medical Society.

PHYSICIANS' ACTIVITIES

Dr. Stanley R. Friesen, of the University of Kansas Medical Center, was moderator of a panel discussion on "Benign Lesions of Ileum and Colon" at a sectional meeting of the American College of Surgeons in Salt Lake City in March.

Dr. Homer L. Hiebert and **Dr. Dean M. Miller,** Topeka radiologists, were speakers at a ceremony in Topeka last month when the first two diplomas ever awarded by the Stormont-Vail School of X-ray Technology were presented. The school is accredited by the American Medical Association and the American Board of Radiology, is sponsored by the hospital board, and is directed by staff radiologists.

A paper, "The Professional Identity of the Psychotherapist," was presented by **Dr. Robert S. Wallerstein,** Topeka, at a meeting of the American Orthopsychiatric Association in New York City in March.

Dr. William R. Evans, formerly of Hoisington, has moved to Great Bend and is now serving as health officer for Barton County and the city of Great Bend.

The Sedgwick County Medical Society participated in Career Day in Wichita by sending speakers to various high schools. Those taking part were: **Doctors C. J. Kurth, F. H. Chard, C. P. McCoy, J. G. Phipps, F. H. Harris, Paul Kaelson, D. R. Wall, H. T. Hidaka, A. J. Adams, J. T. Hamilton,** and **D. C. Reed.**

Dr. Robert P. Woods, of the Menninger Foundation, presented a medico-legal case to students of the Washburn Law School, Topeka, recently.

Announcement has been made by **Dr. Kenneth Bickford,** who was recently discharged from service in the Army, that he will begin practice in Cherryvale, sharing offices with a former classmate at the University of Kansas School of Medicine, **Dr. Richard Hille.**

Dr. Leonard F. Peltier, professor of orthopedic surgery at the University of Kansas Medical Center, has been elected to membership in the Society of University Surgeons.

Dr. Houghton S. Albaugh, Olathe, who has been Johnson County health officer for 12 years, has resigned because of illness.

A paper by **Dr. Kurt Wolff,** Osawatomie State Hospital, "Active Therapy Replaces Custodial Care for Geriatric Patients in Mental Hospitals," was published in the March issue of *Geriatrics.*

Dr. Donald E. Wilcox, Kansas City, acting city-county health director, resigned the position as of April 15. **Dr. Nellie Walker,** who formerly held the position, is now on leave of absence to take postgraduate training and plans to return on June 1.

Dr. E. Grey Dimond, of the University of Kansas School of Medicine, took part in a panel discussion at a meeting of the American Academy of General Practice in Dallas in March. Last month he was moderator of a panel discussion, "Electrocardiographic Quiz," at the 1958 session of the American College of Physicians in Atlantic City.

A community party honoring **Dr. James E. Henshall,** Osborne County physician for more than 40 years, was held last month to celebrate his birthday. A movie on his life was presented.

Dr. Harold L. Lawless, now senior resident physician at Sacramento County Hospital in California, has announced plans to open an office in Blue Rapids in August.

Dr. Edward D. Greenwood, of the Menninger Foundation, was keynote speaker at a meeting of the American Association of Health, Physical Education, and Recreation at Kansas City last month. His topic was "The Pre-Adolescent Child in Modern Society."

Three associates in medicine at the University of Kansas Medical Center, **Dr. John F. Christianson, Dr. William E. Larsen,** and **Dr. James E. Crockett,** recently became diplomates of the American Board of Internal Medicine.

Dr. Howard E. Snyder, Winfield, has been appointed to the Board of Commissioners of the Joint Commission on Accreditation of Hospitals to represent the American College of Surgeons. His term will expire in 1960.

Two Wichita physicians were elected to office in the Mid-Central States Orthopedic Society at a meeting held in Little Rock last month. **Dr. Harry O. Anderson** was chosen as vice-president, and **Dr. H. O. Marsh** was named secretary-treasurer.

Dr. Oscar W. Davidson, Kansas City, discussed public relations at a meeting of the Wyandotte County Medical Assistants' Society last month.

Dr. I. Clark Case, Topeka, was an assistant examiner for the American Board of Neurology and Psychiatry at San Francisco recently.

A feature story about **Dr. L. Lafe Bresette,** Kansas City physician for 40 years, was published in the March 23 issue of the *Kansas City Kansan.*

Dr. William L. Valk, of the University of Kansas Medical Center, spoke on "Fluid and Electrolyte Balance" at a recent sectional meeting of the American College of Surgeons in Des Moines. He was also recently named to membership in the Clinical Society of Genitourinary Surgeons.

Dr. C. Ray Athey, Wichita, spoke on "Hypnosis in Medicine" at the seventh annual convention of the Kansas Association of Practical Nurses in Wichita last month.

The Kansas City Times and the *Cherryvale Republican* recently carried stories about **Dr. William G. Norman,** Cherryvale, who has started his 61st year of practice.

Dr. William Menninger, Topeka, was master of ceremonies at a dinner held in Emporia last month in connection with a meeting of the Kansas Chapter, American College of Physicians. **Dr. H. Alden Flanders,** Hays, presented a paper on the program, "The Philosophy of Rehabilitation of Chronic Diseases." Two Emporia physicians, **Dr. John L. Morgan** and **Dr. Edward J. Ryan,** were in charge of arrangements.

Dr. Calvin A. Pyle, who has been on the staff of a Veterans Administration hospital in Prescott, Arizona, for the past three years, has moved to Leavenworth and is now public health officer for the city and for Leavenworth County.

"The Management of the Euthyroid Patient with Nodular Goiter" is the subject chosen by **Dr. Frank F. Allbritten, Jr.,** of the University of Kansas Medical Center, for an address before the Missouri State Medical Association in St. Louis on April 15.

Dr. Irene A. Koeneke, of the Hertzler Clinic, Halstead, was guest of honor at a banquet given in Wichita last month by the Soroptimist Club. Dr. Koeneke was elected as this year's recipient of the Soroptimist award "in recognition of outstanding individual achievements in professional and business fields of endeavor."

Dr. Ferd H. Burnett, Cunningham, was honored by his community on April 13 with a surprise "This Is Your Life" program. He has been in practice since 1906.

The retirement of two University of Kansas School of Medicine faculty members, **Dr. Sam E. Roberts,** of the Department of Otorhinology, and **Dr. Edward H. Hashinger,** of the Department of Medicine and Gerontology, was announced recently. Dr. Roberts had been at the university since 1914 and Dr. Hashinger since 1921.

Dr. Glenn R. Peters, Kansas City, headed a group discussion on "Fields of Medicine" at a career day program for students at Central College, Fayette, Missouri, on April 12.

Announcement was made recently that **Dr. Joe T. McKibben,** a graduate of the University of Kansas School of Medicine, will move to Kansas soon to practice in Hardtner. Dr. McKibben, recently of Anaheim, California, is a diplomate of the American Board of Surgery.

Dr. Paul H. Lorhan, of the University of Kansas School of Medicine, spoke on "Geriatric Anesthesia" at a refresher course sponsored by the American Society of Anesthesiologists in New York last month.

Blood Typing in Denton

A community blood typing program was begun in Denton recently for the purpose of establishing a walking blood bank for that area. A laboratory technician tested 80 persons to establish their blood types, and 40 more who had already been tested brought cards from other areas to have their names added to the Denton list.

COUNTY SOCIETIES

Members of the Montgomery County Medical Society entertained members of the bar association in the county at a dinner meeting at the Coffeyville Country Club recently. For the program Dr. Stephen S. Ellis, Coffeyville, served as moderator for a panel discussion on "Examination of Medical Witnesses during Trial." Participants for the legal profession were Mr. Jay W. Scovel of Independence and Mr. Aubrey Neale of Coffeyville; for the medical profession, Dr. J. G. Hughbanks, Independence, and Dr. Robert Nix, Coffeyville.

Dr. Sherman M. Steinzeig, associate in medicine at the University of Kansas Medical Center, was guest speaker at a meeting of the Leavenworth County Medical Society at the Hotel Cody last month. He discussed new aids in diagnosis and treatment of heart disease. In view of the public's interest in modern medicine, the society passed a resolution offering to supply speakers to civic bodies on request.

A meeting of the Cowley County Medical Society was held at the Arkansas City Country Club on March 20. Mr. Ford Harbaugh of Wellington, chairman of the Kansas Bar Association Committee on Relations with the Medical Profession, spoke on the proposed inter-professional code for attorneys and physicians of Kansas. Mr. Oliver E. Ebel of Topeka, secretary of the Kansas Medical Society, discussed health workshops in Winfield.

Members of the Pratt County Society were guests of the Auxiliary at a dinner at the Park Hills Country Club, Pratt, last month. Dr. Francis A. Thorpe showed color slides of beauty spots of the nation.

The Golden Belt Medical Society met at the Country Club in Junction City on April 10 with members of the Geary County Medical Society as hosts. Dr. W. D. Francisco, Kansas City, was moderator of a panel discussion on back pain. Participants in the discussion were Dr. Robert P. Woods, Dr. Joseph Gendel, and Dr. Peter Thompson of Topeka, Dr. Donald Wald of Salina, and Dr. Paul Nelson of Concordia.

"Emergency Care of Eye Injuries" was the subject discussed by Dr. Larry L. Calkins, of the University of Kansas Medical Center, at a meeting of the Wyandotte County Medical Society in Kansas City on April 15.

A meeting of the Shawnee County Society was held in Topeka on April 7. During the business session the group heard committee reports and voted to give third polio shots (prior ones given in December and January) at a public clinic in August, charging $1.00 for each shot. Mr. Oliver E. Ebel, executive secretary of the Kansas Medical Society, Dr. James A. McClure, and Dr. Lucien R. Pyle discussed matters to come before the Kansas Medical Society at its annual convention in May. A proposal by the Tuberculosis Committee of the society was approved as follows: that the society sponsor a tuberculosis clinic to be administered under the supervision of the Topeka City-Shawnee County Health Department, the Shawnee County Medical Society, the Tuberculosis Association, and other interested agencies, the clinic to be held separate from all other clinics.

DEATH NOTICES

Adelbert L. Suwalsky, M.D.

Dr. A. L. Suwalsky, 79, Leavenworth physician since 1901, died there on March 27. He was graduated from Medico-Chirurgical College of Kansas City that year. During his years of practice he had served two terms as president of the Leavenworth County Medical Society, of which he was an honorary member at the time of his death. He had also served as city physician and as county health officer.

Oman Reuben Brittain, M.D.

A pioneer in the field of radiology, Dr. O. R. Brittain of Salina, 79, died on April 3 at a hospital in Wichita. An honorary member of the Saline County Society, he had been in retirement since 1948. He received his medical education at Creighton University School of Medicine, completing his work there in 1903. He began practice in Salina in 1904, helped found the Mowery Clinic there in 1932, and assisted with installation of the first x-ray machine in Salina at St. John's Hospital. During World War I he served at Fort Riley and at the medical center at Fort Oglethorpe, Georgia. He was a diplomate of the American Board of Radiology and a fellow of the American College of Radiology.

Markle Scholar at KUMC

Dr. Ned W. Smull, instructor in pediatrics at the University of Kansas School of Medicine, was chosen last month as one of 25 Scholars in Medical Science for 1958 by the John and Mary R. Markle Foundation. A Markle scholar receives a $30,000 appropriation during a five-year period.

Dr. Smull's research interests have been in the field of respiratory physiology. For the past three years he has been engaged in the research laboratories at Kansas City as a member of a team investigating respiratory insufficiency in newborn infants.

The Markle Foundation came into existence in 1927, and since that time 231 physicians in 74 medical schools have been chosen to receive the grants. The purpose of the program is to improve medical research and education by assisting promising young teachers and investigators who, too often, because of financial reasons, must forego academic careers.

Care of the Aged

The foundation was laid recently by some of the most important organizations in the health field to solve the problem of the health care of the aged.

For this purpose the American Dental Association, the American Hospital Association, the American Medical Association, and the American Nursing Home Association announced the establishment of the Joint Council to Improve the Health Care of the Aged.

Objectives of the council, the formation of which has been under consideration for some time by the sponsoring groups, were announced as: (1) to identify and analyze the health needs of the aged; (2) to appraise available health resources for the aged; and (3) to develop programs to foster the best possible health care for the aged regardless of their economic status.

The Joint Council to Improve the Health Care of the Aged is made up of three representatives of each sponsoring organization.

One of the first jobs of the council will be to determine exactly what are the health problems of the aged. Studies have been underway for the past several years by the organizations making up the council, but now, through joint efforts, research will be intensified and projects for meeting the problem will be activated as rapidly as possible. The council will be the agency through which the efforts of the sponsoring member organizations will be coordinated to solve the health problems of the aged.

The sponsoring organizations pointed out that the need for new programs in this field is accented by the fact that the life expectancy of individuals has been constantly increasing in recent years. In 1935 life expectancy in the United States was an average 60.2 years. The most recent figure indicates the average life expectancy now to be 70.0 years.

The council will have as one of its principal immediate projects the development of programs and facilities to be tailored to the health needs and finances of the aged.

Another facet of the council's broad-range program will be to work closely with health insurance groups in an effort to improve the coverage of the aged and to see that their insurance dollars go further.

It is the belief of the Joint Council to Improve the Health Care of the Aged that much can be done for older people by the states and communities, and the council will endeavor to stimulate the activities at these levels of government.

Special research projects are contemplated by each of the organizations supporting the council. This research will then be pooled and programs developed to meet the health needs of the aged. The ultimate goal is to provide adequate health care at reasonable costs.

Schering Gives Audio Digest Subscriptions

Announcement has been made by the Schering Corporation that it is giving 200 one-year subscriptions to Audio Digest to teaching hospitals for the benefit of resident physicians and interns. Each subscription will consist of 122 tapes, each tape recording important medical articles, clinical reviews, and lectures. There will be 26 tapes on general practice and 24 each on surgery, internal medicine, obstetrics and gynecology, and pediatrics.

Lecturers who make the tapes serve without pay to the Audio Digest Foundation, as do members of its board of editors and 100 consultants. All revenue over the cost of production and distribution is contributed to the American Medical Education Foundation.

Film Catalogue Available

A revised list of films available through the American Medical Association motion picture library has been prepared and copies are available upon request from Motion Pictures and Medical Television of the American Medical Association. This catalog lists 87 medical films suitable for showing to medical societies, hospital staff meetings, and other scientific groups. This catalog also includes 57 health films of interest to physicians who may be called upon to speak before lay audiences such as service organizations and Parent-Teachers' Associations.

Tumor Conference

Testicular Tumors

Edited by BONITA J. PETERSON, M.D.

Dr. Friesen: Testicular tumors comprise about 2 per cent of all malignant neoplasms in men and almost 10 per cent of the malignant tumors of the male genitourinary tract. Germinal tumors, of which the three following cases are examples, constitute about 96 per cent of all testicular malignancies.

Dr. Brosius: A 31-year-old white man entered the University of Kansas Medical Center with complaints of hemoptysis and dyspnea. He had been in good health until three months previously when he developed a slight non-productive cough. The cough became productive of clear, blood-streaked sputum and was accompanied by progressive shortness of breath. He did not seek medical attention until ten days before admission, when a roentgenogram of the chest was taken. His past history included surgery at another hospital at the age of 13 for an undescended right testicle and an inguinal hernia.

On admission he was pale, apprehensive, moderately dyspneic, and acutely ill. Examination of the chest revealed both inspiratory and expiratory moist rales throughout both lung fields. No enlarged lymph nodes were palpated. There was a scar and tenderness in the right lower quadrant of the abdomen. No abdominal organs or masses were palpated. The right testicle was not in the scrotum. The left testicle was small but not atrophic. The initial laboratory examinations were within normal limits except for a cytologic examination of sputum reported as containing malignant cells.

Dr. Davidson: The chest film shows a widespread nodular infiltration throughout both lungs typical of metastatic disease.

Dr. Brosius: The hospital course was one of rapid deterioration. The patient was extremely dyspneic during the last three days of his life, despite oxygen therapy. We started him on radiotherapy two days before he died, hoping that the tumor might be somewhat radiosensitive.

Dr. Friesen: Were any laboratory findings of help in determining the tumor type?

Dr. Brosius: His Aschheim-Zondek test was positive. In checking the operative record at the other hospital we found that the testicle was never found. The final diagnosis was given as absence of the right testicle. We believed that the primary tumor arose in an intra-abdominal testicle and was producing gonadotrophins.

Dr. Donald: The malignant potential of undescended testicles is one of the principal reasons for their clinical importance. There is controversy as to the percentage of malignant change and most statistics are poor, because the total number of such cases is small. It has been stated[1] that the chance of malignant change is about 45 times that for a scrotal testicle. A cryptorchid testicle may undergo malignant change even after it has been placed in the scrotum. Nobody knows whether this is due to an inborn defect or to changes which occur while the testicle is still in the abdomen.

Dr. Friesen: If the danger of malignancy is not reduced, why should the testicle be placed in the scrotum?

Dr. Donald: It can then be examined by the patient and his physician.

Dr. Friesen: Is the danger of malignancy great enough to warrant excision of every cryptorchid testicle?

Dr. Donald: If it is made accessible to examination, if the danger is made known to the patient, and if there is an adequate examination at frequent intervals, excision need not be done.

Dr. Friesen: Why should this testicle be saved?

Dr. Donald: Spermatogenesis is possible if the testicle is placed in the scrotum at the age of 4 or 5. Enough patients with bilateral cryptorchidism have become parents to convince us that these testicles do function adequately, although not enough of them have been biopsied to establish any percentage. When a patient has unilateral cryptorchidism, there is always the risk that the opposite testicle may be injured. Therefore we try to save the cryptorchid testicle.

Dr. Friesen: Certainly it would be better to remove such a testicle than to leave it in the abdomen.

Dr. Donald: Yes, if it can't be brought into the scrotum, it should be removed.

Dr. Friesen: What were the findings at autopsy in this case?

Dr. Davis: A mass weighing 120 grams was found in the right lower quadrant of the abdomen. It was

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service, and from the Kansas Division of the American Cancer Society. Dr. Peterson is a Fellow of the American Cancer Society.

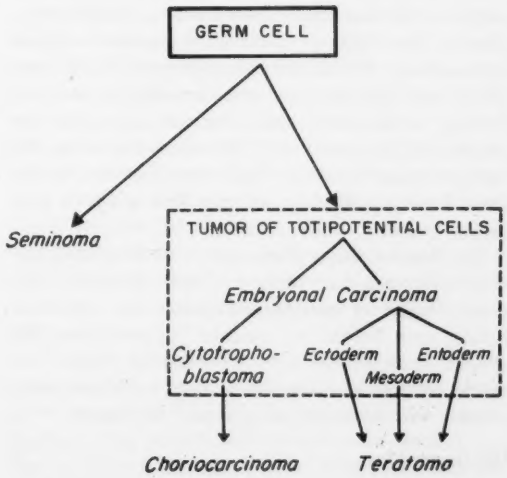
covered with peritoneum and was composed of yellow, partly necrotic tissue with numerous areas of hemorrhage. Hemorrhagic metastases were found in the lungs, both kidneys, the liver, jejunum, hilar lymph nodes, and the brain.

Dr. Boley: This type of tumor is characteristically hemorrhagic and shows large areas of necrosis. The tumor has two components, both of which must be present before the diagnosis of choriocarcinoma can be made. First, there is the cytotrophoblastic component with visible cell walls and pleomorphic nuclei. Secondly, there are syncytial masses of cytoplasm with multiple nuclei. The cells act similarly to those of the placenta in producing some substance, possibly an enzyme, which causes destruction of blood vessels with consequent hemorrhage. A small focus of tumor in the brain will cause a large area of necrosis.

Most of the malignancies we have seen in undescended testicles have been seminomas. They are the least malignant and the most sensitive to radiation, whereas choriocarcinoma is the most malignant and radioresistant.

Dixon and Moore[1] have postulated the origin of testicular tumors derived from germ cells as follows:

TUMORS OF GERM CELL ORIGIN



There are pure forms of these tumors and many combinations.

Dr. Friesen: Our second case is an example of a mixed type of tumor.

Dr. Witus: A 16-year-old boy was admitted with a chief complaint of a swollen testicle for two weeks. Two months earlier, after playing football, he first had painless swelling of the testicle without associated symptoms or known direct trauma. The swelling subsided spontaneously in five days. The second swelling followed a game of basketball, again with no history of direct trauma.

The admission physical examination was within normal limits except for a firm, non-tender mass in the right hemi-scrotum. Laboratory examinations, including an Aschheim-Zondek and a frog test, were within normal limits. The x-rays, including an intravenous pyelogram, were also normal.

Intravenous pyelograms are done routinely when we suspect a tumor of the testicle. The spread of such a tumor is to the retroperitoneal lymph nodes, and enlarged nodes can produce compression or deviation of a ureter. We routinely do the frog test to detect tumors producing gonadotrophins. In this case, everything was normal except for the mass in the scrotum, which was assumed to be tumor.

Dr. Donald: Any enlargement of the testicle should be considered tumor until proven otherwise. A hydrocele can be differentiated by transillumination, and a hernia, usually by reduction. At least 75 per cent of all testicular tumors have a history of trauma, but there is no apparent causal relationship.

We feel that biopsy of a testicular tumor is not indicated. We open the inguinal canal, isolate the cord, and clamp it so that further manipulation will not disseminate tumor cells into the systemic circulation. The tumor or testicle is then brought into view and examined. It is not always possible to determine by inspection whether tumor is present, but the surgeon must decide at that time if the possibility of tumor is great enough to warrant orchidectomy. In this case, it was felt that tumor was present. The testicle was removed and the cord ligated in the inguinal canal.

Dr. Friesen: Are there any inflammatory conditions which must be differentiated?

Dr. Donald: Yes, the most common inflammatory disease is epididymitis, but this can be diagnosed by examination. Occasionally an abscess or orchitis will be diagnosed as tumor. In many of these cases the testicle would have no further function, so its removal is not a serious mistake.

Dr. Friesen: Would you expect a tumor to be nontender and the patient afebrile?

Dr. Donald: Not necessarily. A tumor can have spontaneous hemorrhage with swelling, pain, and fever. Trauma would produce pain as in a normal testicle. I think that probably a testicle with tumor is more susceptible to injury than is a normal testicle.

Dr. Friesen: At the time of the orchidectomy, do you look for iliac nodes and examine the inferior vena cava?

Dr. Donald: This is a part of the future management. The type of tumor dictates further treatment,

so we wait for the pathological diagnosis before proceeding further.

Dr. Boley: In this case there are areas with well-differentiated teratoma showing tall columnar epithelium, lymphoid tissue, and other components. In other areas the epithelium shows hyperchromatic nuclei and pleomorphism of the cells consistent with embryonal carcinoma. This is an example of a mixed tumor as mentioned previously. We would expect the metastases to behave like embryonal carcinoma.

Dr. Donald: We must direct our management of this patient toward the most malignant cell type since the behavior of the tumor and the behavior of the metastases will mimic the most malignant component. There are two categories of further therapy, radiotherapy and surgery. The seminoma tends to be pure and is extremely radiosensitive. In these cases we feel that excision of the testicle followed by radiotherapy gives the greatest possible cure rate. All other testicular tumors are relatively radioresistant and should be treated by radical node dissection of the lymphatic drainage areas for the testicle.

In this case all lymph node bearing areas were removed from the right diaphragm to the junction of the internal and external iliac arteries. There are three areas where metastatic tumor is commonly found in lymph nodes: over the common iliac arteries, over the bifurcation of the aorta, and at the renal hilum. This patient had a large node at the bifurcation of the aorta which was firmly attached to the vena cava. It could not be dissected free so that part of the vena cava had to be sacrificed with the block dissection.

Dr. Boley: This node contained a more malignant type of tumor cell than most areas of the primary tumor. When nodes are involved, the prognosis becomes poor. In the series of Dixon and Moore,[1] the two-year survival rate in patients with teratocarcinoma and lymph node metastases was only 16 per cent, as compared to 59 per cent in those with no lymph nodes metastases.

Dr. Donald: More than 50 per cent of the cases of teratocarcinoma have metastases by the time of orchidectomy. These tumors occur in young active individuals and tend to metastasize early. They are frequently not noticed by the patient until groin or back pain develops.

Dr. Friesen: Dr. Witus, will you present the last case?

Dr. Witus: A 32-year-old white man was admitted with a right scrotal mass. Four months previously he had had sudden pain, tenderness, and swelling of his testicle without trauma, fever, or infection. The testicle had changed little in size since that time, but the tenderness had disappeared. He had been treated with antibiotics and stilbestrol.

At the time of admission the general physical examination was negative except for the right testicle. It was twice the normal size, hard and nodular, but non-tender. Routine laboratory examinations and x-rays were normal. An inguinal orchidectomy was done.

Dr. Boley: The tumor is composed of cells with pale, rather abundant cytoplasm and uniform nuclei. There are a few lymphocytes in the moderately abundant stroma. The amount of stroma and the variation in the nuclei does not apparently affect the prognosis. Dixon and Moore,[1] in their series of 990 cases, found that pain, even with seminomas, was a poor prognostic sign. When pain was present, there were only about one-third as many survivors in patients with seminoma, embryonal carcinoma, and teratoma as when there was no pain. Those with urinary gonadotrophins also had a poorer prognosis.

Dr. Fink: When a patient with a seminoma has urinary gonadotrophins, isn't he likely to have a nodule of choriocarcinoma that has not been recognized?

Dr. Boley: Yes, either that or embryonal carcinoma. There are 15 different combinations of the various tumors of germ cell origin, and rules for the pure types do not hold for the combinations, either for prognosis or therapy.

Dr. Tice: When pure, the seminoma is so radiosensitive that one might consider using radiotherapy alone if the diagnosis could be determined without orchidectomy. We started radiotherapy in this patient about four days after the orchidectomy. He received therapy to the pelvis similar to that given for carcinoma of the cervix, and 1500r was directed to the retroperitoneal lymph nodes. I have treated two patients having palpable metastases with survivals thus far of 10 and 15 years.

Dr. Friesen: These three cases have been informative. Cryptorchidism deserves early attention. We must consider an undiagnosed mass in the scrotum as tumor, even before we consider inflammation. We should remember that many testicular tumors are mixed in type and that their most malignant component will limit the effectiveness of therapy.

Bibliography

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Speeding was blamed for 13,830 deaths on U. S. highways in 1956.

Men were drivers in 89.7 per cent of fatal accidents on U. S. highways in 1956.

Milk-Alkali Syndrome

Its Pathogenesis and Report of Three Cases

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In 1922 Grant[21] first observed that alkalosis occurred as a result of using Sippy powders (calcium carbonate, sodium bicarbonate, and magnesium oxide) in the treatment of peptic ulcer. The following year Hardt and Rivers[22] reported symptoms of azotemia in patients with duodenal ulcer treated by the same method. These symptoms were accompanied by renal changes, increased blood urea, and either normal or increased carbon dioxide combining power. Hardt and Rivers noted that patients with renal complications were more inclined to develop these toxic manifestations and to develop them to a much greater degree. They discovered that the alkalosis and azotemia improved when the milk and alkali regimen was stopped. In 1936 Cope[11] noted a considerably elevated serum calcium level in several patients with this clinical picture.

Burnett and associates,[7] in 1949, reported six patients presenting the following characteristic features: hypercalcemia without hypercalcuria or hypophosphatemia, normal alkaline phosphatase, marked renal insufficiency with azotemia, mild alkalosis, and calcinosis manifested especially by an ocular lesion resembling band keratitis. The six patients all showed clinical improvement on low milk and absorbable alkali intake. These patients gave a history of prolonged and excessive intake of milk and absorbable alkali (sodium bicarbonate). Since Burnett's paper was published, this group of symptoms has been referred to as Burnett's syndrome or the milk-alkali syndrome. The latter term will be used throughout this paper.

In all six of Burnett's cases there were ocular lesions similar to those described by Walsh and Howard[42] in patients having hypercalcemia of varied etiology. The conjunctival lesions were small glass-like particles in the conjunctivae of the palpebral fissure area. The changes in the cornea consisted of hazy, gray, granular epithelial and subepithelial deposits running concentrically with the limbus on either the nasal or temporal side or both. These lesions may be confused with arcus senilis.

Kyle[29] recently emphasized the difficulty in clearly differentiating hyperparathyroidism from the milk-alkali syndrome. In his opinion, clinical improvement on a diet low in calcium and absorbable alkali may be the most important differentiating feature. Waife[41] has observed that patients with hyperparathyroidism often have an acute onset of epigastric pain, vomiting, and constipation.

Hyperparathyroidism is characterized by hypercalcemia and hypercalcuria which eventually results in renal failure. However, when renal failure occurs as a late complication, the low serum phosphorus and the hypercalcuria may disappear, and, as in the milk-alkali syndrome, hypercalcemia without hypercalcuria occurs. Schneider[34] also recognized the difficulty in differential diagnosis. He points out that in about one-third of patients having hyperparathyroidism there is skeletal damage, pathognomonic radiologic findings of osteitis fibrosa cystica, and absence of dental lamina dura. The milk-alkali syndrome does not cause skeletal damage.

The following three cases of the milk-alkali syndrome were seen at the University of Kansas Medical Center and are presented to illustrate the importance of vomiting in the pathogenesis of this syndrome.

Case 1, a 49-year-old white man was admitted on November 22, 1955, via the emergency room with the chief complaint of epigastric pain. The patient had been known to have duodenal ulcer since 1937 with recurrent episodes of epigastric pain. He never stayed on good management and continued to use alcohol and smoke two packs of cigarettes daily. He had had two episodes of gastrointestinal bleeding, the last occurring one month prior to admission. He had been hospitalized one month prior to admission and released on dietary management, aluminum hydroxide gel (Amphogel) and methantheline bromide (Banthine). He continued to have epigastric pain and complained of nausea and vomiting each evening. He presented himself to the hospital with the idea of having surgical resection. He had lost 20 pounds of weight during the preceding year.

In 1943 the patient was exposed to carbon tetrachloride and methyl bromide which was followed by a month's illness characterized by coma and generalized anasarca.

This is one of 11 theses, written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Gallehugh is now serving his internship at U. S. Army Madigan Hospital, Tacoma, Washington.

On admission, temperature, pulse, and respiration were normal. The blood pressure was 180/105. Ophthalmological examination revealed some retinal vessel narrowing and mild A-V nicking. The liver was palpable one fingerbreadth below the right costal margin. The remainder of the physical examination was within normal limits.

The urine showed a specific gravity of 1.006, with an alkaline reaction and a negative test for sugar and albumin. On microscopic examination many white blood cells and numerous crystals were found. Examination of the blood disclosed 12.5 gm. of hemoglobin per 100 cc., a red blood cell count of 3,780,000 per cubic millimeter, and a white cell count of 7,500 per cubic millimeter, with 73 per cent neutrophiles, 3 per cent nonsegmented neutrophiles, 22 per cent lymphocytes, 4 per cent monocytes, and 1 per cent eosinophiles. The V.D.R.L. test was negative. The platelet count was 293,000 per cubic millimeter. The reticulocyte count was 1.6 per cent.

Blood chemistry studies showed a blood urea nitrogen of 53.2 mg. per 100 cc., serum calcium 6.6 mEq., serum phosphorus 2.0 mEq., non-protein nitrogen 55 mg. per 100 cc., fasting blood sugar 92 mg. per 100 cc., serum sodium 145 mEq., serum potassium 3.5 mEq., chloride 90 mEq., and carbon dioxide combining power 37.3 mEq. The free hydrochloric acid in an evening aspirate was 48 degrees, total acid was 100 degrees. A phenolsulfonphthalein test revealed 3.3 per cent of the dye excreted in 15 minutes and 17.3 per cent in one hour. The blood ammonia was 91 mg. per 100 cc., serum bilirubin 0.1 mg. direct, 0.5 mg. per cent total; alkaline phosphatase 1.1 millimol units; bromsulfonphthalein 2 per cent retention at 20 minutes; cephaline cholesterol flocculation negative; thymol turbidity 4 units; serum lipase 0.5 mg. per 100 cc.; serum albumin 4.7 gm. per 100 cc.; serum globulin 2.48 gm. per 100 cc.; serum iron 60 gamma per 100 cc.; serum amylase 56 mg. per 100 cc.; cholesterol 327 mg. per 100 cc. with 70 per cent esters.

The electrocardiogram revealed flattening of the T waves throughout the tracing and suggestion of early left ventricular hypertrophy. Radiologic examination showed a normal chest and heart. The kidney-ureter-bladder film revealed relatively large kidneys on both sides. Upper gastrointestinal series revealed a marked deformity of the duodenal bulb consistent with ulcer. At the time of gastrointestinal studies there was no evidence of obstruction. Skin test for histoplasmosis was positive; other skin tests were negative at 48 hours. Sulkowitch test revealed a decreased urinary calcium excretion. Stools for blood were negative on two occasions.

After admission, the patient was started on nightly gastric aspirations. The first of these were 925 cc. and 1300 cc. He was placed on management consisting of milk on the hour during the day and every two hours at night and magnesium trisilicate and aluminum hydroxide (Gelusil) on the half hour.

At first it seemed obvious that his electrolyte disturbance and elevated blood urea nitrogen were due to renal disease which he had sustained in an accident many years ago. However, it was learned that this man had taken extremely large quantities of milk and antacids for many years. At that time the serum calcium was checked and found to be 6.6 mEq., and it was felt that this pattern of renal insufficiency probably was due to the milk-alkali syndrome. He was then taken off milk and left on Gelusil and a six-feeding bland diet which he tolerated well. His electrolytes returned to normal and the blood urea nitrogen fell to 49 mg. per 100 cc. While he was under observation in the hospital, his blood pressure remained elevated. However, by the time of dismissal it was in the order of 160/85. The surgeons suggested further medical management. After 15 days in the hospital, the patient was discharged on a six-feeding bland diet and frequent magnesium trisilicate and aluminum hydroxide (Gelusil).

Case 2, a 46-year-old white man, was admitted on November 26, 1955, with a chief complaint of "vomiting blood." He had been well until November 1953, when he began to have severe abdominal pain. In January of 1954 he had his first episode of hematemesis which lasted for one day. He was not hospitalized or transfused. In June of 1955 he became jaundiced and began to lose weight. He consulted his local physician who told him that he had "malaria fever" and gave him some pills. He did not have chills or fever. The jaundice subsided and he apparently was well until September 1955, when he began to have trouble with "gas" which was relieved by vomiting. This was usually worse about one hour after eating and occasionally awakened the patient at night.

One month prior to admission he had an episode of hematemesis and melena which lasted several days. Two weeks prior to admission at the University of Kansas Medical Center, he was hospitalized for eight days and given seven units of blood. After discharge he was placed on a soft diet and aluminum hydroxide gel (Amphogel) every two hours while awake. Two days prior to admission, the patient vomited a large quantity of bright red blood with no subsequent bleeding. A review of the patient's systems revealed he had been taking enemas three times a week for many years for constipation.

On admission, temperature, pulse, and respiration were normal. The blood pressure was 90/40. The skin was slightly jaundiced. The extremities showed

wasting of muscles most marked in the shoulder girdle and upper arm. The remainder of the physical examination was within normal limits.

The urine showed a specific gravity of 1.011, with an alkaline reaction and a negative test for sugar and albumin. On microscopic examination a few casts and occasional white blood cells were seen. Examination of the blood disclosed 7.5 gm. of hemoglobin per 100 cc., a red blood cell count of 2,890,000 per cubic millimeter, and a white cell count of 5,400 with a normal differential. The hematocrit was 22 per cent.

Blood chemistry studies showed a serum calcium of 8.3 mEq.; serum phosphorus 1.2 mEq.; non-protein nitrogen 29.2 mg. per 100 cc.; serum sodium 140 mEq.; serum potassium 5.0 mEq.; serum chloride 103 mEq. per 100 cc.; carbon dioxide combining power 27 mEq.; total protein 5.68 gm. per 100 cc.; serum globulin 1.78 gm. per 100 cc.; serum albumin 3.82 gm. per 100 cc. The serum iron was 20 gamma per 100 cc. A 24-hour urine for creatinine showed 445 mg. per 1180 cc. of urine. The hepatogram was normal. The electrocardiogram was normal. Radiologic examination showed a normal chest and abdomen. A barium meal revealed that the stomach was obstructed at the gastric outlet—no ulcer was identified.

The patient was placed on a six-feeding bland diet and was given two pints of whole blood the day of admission and one pint the following day. He was started on a regimen of milk and magnesium trisilicate and aluminum hydroxide (Gelusil). On December 2, 1955, this was discontinued and he was started on milk and calcium carbonate. On December 12, 1955, the serum calcium was found to be 8.3 mEq. and the serum phosphorus 1.2 mEq. At that time the calcium carbonate was discontinued and aluminum hydroxide gel (Amphogel) substituted. Following this the serum calcium level dropped to 3.9 mEq. and serum phosphorus to 0.29 mEq. Again the regimen was changed to milk and calcium carbonate following which the serum calcium level increased to 2.1 mEq. and the non-protein nitrogen dropped from 77 to 49 mg. per 100 cc.

The patient was discharged after 20 days in the hospital on a six-feeding soft ulcer diet, calcium carbonate, 4 grams (two drams) three times per day, and milk 120 cc. (four ounces) every two hours.

Case 3, a 56-year-old white man, was admitted on October 30, 1956, with the chief complaint of stomach pain. The patient had been treated for peptic ulcer since 1940. In July 1947 he had had a perforation of his duodenal ulcer which was repaired by suturing. In January 1948 he became obstructed and had a gastrojejunostomy. Following this he did fairly well on diet alone until May 1954, when he developed pain which again was treated with diet. On September 26, 1955, the patient suddenly developed nausea and vomiting and had severe abdominal pain which began approximately at 11:00 a.m. each morning. The pain required meperidine (Demerol) for two weeks prior to admission. The vomiting persisted until the time of admission.

On admission, temperature, pulse, and respiration were normal. The blood pressure was 140/80. The physical examination revealed healed right and left paramedian surgical scars. The examination was otherwise negative.

The urine showed a specific gravity of 1.022, with an acid reaction, a slight trace of albumin, and a negative test for sugar. On microscopic examination, occasional hyalin, waxy, and granular casts and 2-5 white blood cells per high power field were found. Examination of the blood revealed 16.5 gm. of hemoglobin per 100 cc., a white blood cell count of 7,900 per cubic millimeter, and a red blood cell count of 5,700,000 per cubic millimeter. The differential showed 58 per cent neutrophiles, 1 per cent nonsegmented neutrophiles, 33 per cent lymphocytes, 8 per cent monocytes and 1 per cent basophiles. The V.D.R.L. test was negative. Blood chemistry studies showed a blood urea nitrogen of 20 mg. per 100 cc., a fasting blood sugar of 70 mg. per 100 cc. The erythrocyte sedimentation rate was 20 mm. per hour. Stool examinations for occult blood were positive. Radiologic examination showed a normal chest, gallbladder, and colon. A barium meal revealed a postoperative stomach with enterostomy having little function and an ulcer present in the pyloric canal.

He was started on a regimen of calcium carbonate, milk, and cream. After eight days he was started on a liberal bland diet. Gastroscopy was done and revealed hypertrophic changes in the mucosa. He was discharged on November 9, 1955, on a liberal bland diet and a prescription for calcium carbonate and magnesium carbonate.

He was readmitted on March 21, 1956, with the chief complaint of vomiting. He had been well until March 17, 1956, when he began to vomit. The patient was unable to keep anything in his stomach until the morning of March 21, 1956, when he was able to drink small amounts of water without vomiting.

At the time of admission the blood pressure was 130/70. The pulse was 80 with occasional premature ventricular contractions. The tongue was dry and furrowed. There was minimal tenderness in the epigastrium three fingerbreadths below the xiphoid process.

The urine showed a specific gravity of 1.008, with an alkaline reaction, a faint trace of albumin, and a

negative test for sugar. The red blood cell count was 5,200,000 per cubic millimeter, white blood cell count 11,650 with a normal differential. Blood chemistry studies showed a blood urea nitrogen of 68 mg. per 100 cc., serum calcium 8.0 mEq., creatinine 5 mg. per 100 cc., serum sodium 138 mEq., serum potassium 3.2 mEq., carbon dioxide combining power 44.2 mEq., serum chloride 73 mEq. Radiologic examination of the gastrointestinal tract revealed a duodenal ulcer with marked deformity of the duodenal bulb. There were low grade obstructive changes.

On admission the patient was given 2,000 cc. of 5 per cent glucose in normal saline with 60 mEq. of potassium chloride followed by 200 mEq. of ammonium chloride intravenously. The patient showed marked improvement and was discharged on March 24, 1956.

Discussion

Several theories have been postulated concerning the pathogenesis of the milk-alkali syndrome, but the subject is still highly controversial. All theories seem to agree, however, that development of the syndrome depends upon renal insufficiency.[4,7,25]

Bland[6] believes renal insufficiency is probably caused by intrarenal calcification and potassium depletion resulting in a characteristic degenerative tubular lesion. This belief is supported by the work of Becker[3] who recently reported renal parenchymal calcification in 36 per cent of 99 patients who had active or healed duodenal ulcer. He postulated that these patients had ingested large amounts of calcium and had also suffered from asymptomatic and transient episodes of alkalosis.

An explanation for intrarenal calcification has been offered by Snapper et al.[38] They believe that calcium is deposited preferentially in organs where the excretion of acid results in a temporary tissue alkalosis, viz., kidney, stomach, and lung. Development of renal insufficiency seems to depend, therefore, upon either hypercalcemia or metabolic alkalosis or both. Burnett et al.[3] suggest that acute renal insufficiency occurring during alkalosis resembles lower nephron nephrosis (acute tubular necrosis) in some respects.

Renal failure associated with hypercalcemia has been observed in various diseases including hyperparathyroidism, acute osteoporosis, hypervitaminosis D, sarcoidosis, and generalized carcinomatosis with metastatic bone involvement.

Peptic ulcer therapy rarely, if ever, produces hypercalcemia unless alkalosis occurs.[25] Wolf and Ball[24] studied the problem of hypercalcemia without alkalosis and concluded that the plasma concentration of calcium is apparently not regulated by renal function. It has been postulated, however, that alkalosis plays a role in the renal excretion of calcium. It has been demonstrated that alkali administration decreases urinary calcium excretion[1] while ammonium chloride ingestion results in increased calcium excretion.[19] The observation that orally administered inorganic phosphate decreases the urinary excretion of calcium is also of importance.[2] The pertinence of this experimental evidence is apparent when one considers the fact that milk contains, in addition to calcium, large amounts of phosphate.

Although sodium bicarbonate was the usual alkali used by Burnett's patients, this syndrome has also been observed in patients using only calcium carbonate, generally considered to be a non-absorbable alkali. Ogle[33] was the first to report a case of the milk-alkali syndrome developing in a patient who was receiving only calcium carbonate, although numerous other investigators[11,20,35,44] have reported alkalosis occurring in patients receiving calcium carbonate. This problem was studied as early as 1941 by Kirsner and Palmer.[26] They believe that a chloride deficiency develops in certain patients treated with calcium carbonate.

Several mechanisms for the chloride deficiency have been suggested, including a low intake of sodium chloride, loss of chloride from vomiting or from aspiration of the gastric contents, and increased excretion of chloride in the feces. Peters[48] believes that part of the carbonate ion may be absorbed into the blood. Ogle has pointed out that calcium carbonate reacts with the hydrochloric acid in the stomach to produce calcium chloride. Although some of the calcium chloride may be absorbed, it is believed that the bulk of it is reconverted to insoluble calcium salts in the alkaline secretions of the small intestine. The formation of calcium chloride may contribute, in part, to the chloride deficiency.

Another important theory attempting to explain the pathogenesis of this syndrome is that concerning the importance of previous renal damage in the development of alkalosis during treatment with alkaline powders.[4] Wilkinson and Jordan[45] studied this problem in 1939. They determined the renal clearance with sulfate before and after alkalosis and concluded that previous renal damage had been present in most of their cases.

In 1942 Kirsner and Palmer[27] studied the problem further. They gave large amounts of absorbable alkali (calcium carbonate and sodium bicarbonate) to a number of patients who had impaired renal function without the development of alkalosis although they produced alkalosis in patients with normal renal function. They found the incidence of alkalosis to be higher in patients with massive gastrointestinal

hemorrhage or patients who had lost gastric juice either by vomiting or therapeutic aspiration.

McGee[3] considered this problem in 17 patients with normal kidneys. He gave these patients 20-30 grains of a mixture of calcium carbonate and magnesium oxide every hour from 7:00 a.m. to 9:00 p.m. for eight days. Although the blood urea nitrogen and carbon dioxide combining power did not change significantly, urea clearance fell 30 per cent in ten of the patients. Jeghers and Lerner[24] believe that factors other than an excessive intake of alkali must be present before patients with normal renal function develop alkalosis.

Another consideration which has been little more than mentioned in the medical literature is that concerning potassium depletion as an etiologic factor in the pathogenesis of the milk-alkali syndrome. It is well known that alkalosis of body fluids is associated with a loss of potassium. Bland states that whenever metabolic alkalosis is present, potassium depletion may be assumed to be present.

The fact that loss of gastric contents due to vomiting contributes to the pathogenesis of this syndrome is apparent from the three cases reported in this paper. All three of these patients gave a history of vomiting prior to the development of the syndrome. It is conceded that this series is too small to be statistically significant; however, 18 of 35 cases reviewed in the literature also gave a history of vomiting. No attempt was made in reviewing the literature to study potassium depletion in previously reported cases since levels of serum potassium do not necessarily reflect the state of depletion or repletion of body potassium.[40]

It has been noted that when potassium depletion and metabolic alkosis occur, two sodium ions and one hydrogen ion move into the cell to replace three potassium ions moving out to be excreted in the urine. When hydrogen ions move from the extracellular to the intracellular space, the extracellular space is left with a high concentration of bicarbonate and the intracellular space has an increased acidity. Thus an intracellular acidosis and an extracellular alkalosis occur.[9,12,13]

In the renal tubular mechanism for the reabsorption of sodium, a competition for the secretion of hydrogen and potassium exists.[5] When primary alkalosis occurs, a decreased availability of hydrogen ions allows potassium to be lost in exchange for sodium. During potassium depletion potassium would be less available and hydrogen ion loss would be favored. This mechanism, together with the movement of hydrogen ions into cells, augments the alkalosis.

Bland states that, "Alkalosis and potassium loss can occur simultaneously and act in concert to perpetuate one another. Alkalosis promotes markedly increased renal excretion of potassium."

It has been shown that experimental depletion of potassium produces renal tubular lesions in rats.[39] Recently Relman and Schwartz[37] studied renal tubular changes in patients with potassium depletion. Renal biopsies were obtained from three of the patients. They observed marked swelling of the epithelium of the proximal tubules and diffuse foamy degeneration of the cytoplasm. Similar lesions have been observed in two patients who were treated with large doses of cortisone.[37] Relman et al. noted that these lesions also developed as a secondary complication in kidneys which were already diseased. They point out that potassium depletion may severely impair tubular function, but apparently it is not likely to produce overt uremia without other contributing factors. The renal dysfunction is more severe when potassium depletion occurs as a complication of preexisting renal disease.

It is well known that any type of stress results in an increased secretion and increased cellular utilization of adrenocortical steroids. These substances also produce a disturbance in acid-base balance characterized by a hypochloremic alkalosis. This is associated with a negative potassium balance and therefore may be called a hypokalemic alkalosis.

It is generally agreed that emotional factors and stress are of significance in the etiology of peptic ulcer. It seems probable that these factors also contribute to the pathogenesis of the milk-alkali syndrome through secretion of adrenocortical steroids, alkalosis, and potassium depletion.

Finally, it is quite obvious that no single factor is etiologic in the development of the milk-alkali syndrome and that a number of factors are operating concomitantly to produce this group of symptoms. This is shown graphically in Figure 1.

Summary

1. Three cases of the milk-alkali syndrome which

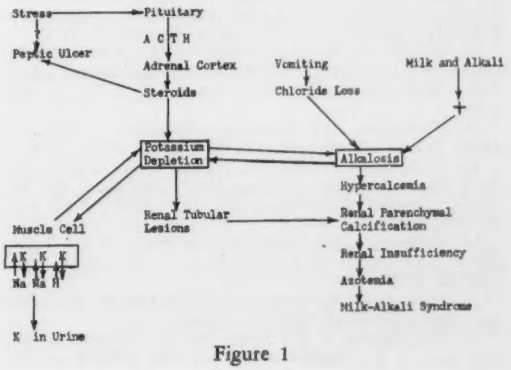

Figure 1

were seen at the University of Kansas Medical Center are presented to illustrate the importance of vomiting in the pathogenesis of this syndrome.

2. The literature is reviewed and the present theories of pathogenesis are presented.

3. Evidence is presented that potassium depletion may be important in the development of this syndrome.

4. No single factor is etiologic in the pathogenesis of the milk-alkali syndrome.

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ANNOUNCEMENTS

Courses in histochemistry, University of Kansas Medical Center, June 9-14 and June 16-21. Write Department of Postgraduate Education, University of Kansas School of Medicine, Kansas City 12, Kansas.

Annual meeting, American Goiter Association, St. Francis Hotel, San Francisco, June 17-19. Information available from Dr. John C. McClintock, 149½ Washington Avenue, Albany 10, New York.

Scientific meeting, Gerontological Society, Inc., Bellevue Stratford Hotel, Philadelphia, November 6-8. Co-chairmen are Dr. Warren Andrew, Bowman Gray School of Medicine, Winston-Salem, North Carolina, and Dr. Joseph T. Freeman, 1530 Locust Street, Philadelphia 2.

Courses offered by New York University Postgraduate Medical School, 550 First Avenue, New York 16: symposium on modern therapeutics in internal medicine, June 9-20; management of chronic kidney disease, June 23-24; acute neurological problems of general practice, June 23-27; management of hypertension, June 25-26; general medicine review, July 7-18; auscultation of the heart, July 16-18.

Postgraduate course in geriatric medicine, with special emphasis on heart disease and psychosocial problems of later life, Washington University School of Medicine, Euclid Avenue and Kingshighway, St. Louis, May 24 and 25. Tuition free. Category I credit, AAGP.

Trudeau School of Tuberculosis and Other Pulmonary Diseases, Saranac Lake, New York, June 2-20. Address inquiries to Box 500, Saranac Lake. Enrollment limited.

Course in occupational medicine, September 15-November 7, offered by New York University Postgraduate Medical School, 550 First Avenue, New York 16, New York.

Postgraduate refresher course, University of Southern California School of Medicine, August 5-21, offered in Honolulu and on board the *SS Matsonia.* Courses offered by specialties, based on actual case histories. Write Director of Postgraduate Division, USC School of Medicine, 2025 Zonal Avenue, Los Angeles 33.

Veterans Administration Office, 49 Fourth Street, San Francisco, announces vacancies for Medical Rating Specialists at $8,645 per annum to sit on board to rate claims of former members of the armed forces for disability compensation.

Applications now being accepted for certification, new and reopened, American Board of Obstetrics and Gynecology, Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio. Deadline for applications, September 1.

Courses offered by University of Colorado Medical Center, 4200 East Ninth Avenue, Denver: clinical hematology, June 16-21; dermatology for general practitioners, July 10-12; prevention and management of athletic injuries, August 25-27.

Annual course in postgraduate gastroenterology, Jung Hotel, New Orleans, October 23-25, auspices of American College of Gastroenterology, 33 West 60th Street, New York 23, New York.

Good will tour to countries of the Orient following International Congress of Ophthalmology in Brussels in September. All physicians welcome. Write Compass Travel Bureau, 55 West 42nd Street, New York 36, New York.

The program of socialized medicine in Great Britain is becoming more expensive, according to a report made recently by the National Health Service. Fees paid by those using the service and by employers are to be raised in July. It is estimated that a total of $2,072,000,000 will be needed for maintaining the service during the coming fiscal year.

BOOK REVIEWS

Surgery in World War II. Ophthalmology and Otolaryngology. Editor in Chief, Col. John Boyd Coates, MC. Published by Office of Surgeon General, Department of the Army, Washington, D. C. 605 pages. Price $5.00.

The volumes comprising the history of the Medical Department of the U. S. Army in World War II are divided into two series: (1) the administrative and operational series which constitutes a part of the general series of the U. S. A. in World War II; and (2) the professional, or clinical and technical, series. This is one of the volumes published in the latter series. It contains data accumulated and summarized as of 1947, although published in 1957.

This book is a good factual account of the combined administrative and professional problems which were met by our specialties in wartime. The authors happily resisted the temptation to list statistics and gave an interesting, running commentary instead.

The opthalmology portion is especially well documented and much more complete. The type of problems confronted, the method of solution, and the lessons learned are detailed for the ZI (Zone of Interior) as well as the ETO and PTO (overseas theaters of operations).

The problem of availability and the utilization of personnel was foremost. During World War II only one-third of all the qualified opthalmologists were in the ZI, while two-thirds were overseas. Since the total number available was always inadequate, the successful development of "specialty centers" in which problem cases were grouped became one of the most effective accomplishments of the war. The use of top men, in uniform, as regional consultants was another great forward step although it was not utilized sufficiently in the ZI.

The special problems of refraction in ZI and overseas, including the issue and supply of glasses; the development of the acrylic false eye; the training and rehabilitation of the blind; the medical management and the evacuation of combat injuries including foreign bodies of the eye; the plastic reconstruction of the eye and associated facial deformities—all of these make dramatic reading. The day-to-day routine overload in the outpatient clinics of the hospitals, the training centers, induction centers, staging areas, and overcrowded camps in general is not forgotten, and due credit is offered to the members who carried on this big, necessary, but non-glamorous job.

The otolaryngology section is less complete and much less effective, although some attempt at presenting clinical problems is made. Details are limited to the experiences of a few top men in ETO. Except at Hearing and Facial Nerve Centers, special grouping of otolaryngologists was not feasible. Head and neck war injuries were routed to maxillofacial teams. Otolaryngologists were seldom involved since maxillofacial teams were controlled separately and did not usually include an ENT surgeon. The rehabilitation of the deafened was outlined, and a limited analysis of acoustic trauma was included.

Not discussed was the tremendous, routine work of the ENT outpatient staffs and their success in keeping men on the duty roster.—*J.A.B.*

Current Therapy 1958. By Howard F. Conn, M.D. Published by W. B. Saunders Company, Philadelphia. 827 pages. Price $12.

Do you occasionally face an unusual therapeutic situation—one with which you deal so rarely that you are not certain of the details of the regimen? Do you perhaps wonder whether the treatment you learned in school or the one in your not too up-to-date textbooks and monographs has been superseded? If so, you will want to look into *Current Therapy*.

This is a rather large book which is revised annually by the editor, 12 consulting editors, and nearly 300 contributors. Many hands make light work, and it is unlikely that adequate annual revisions could be made without the cooperative efforts of so many men, each an authority in his field. Multiple author books are inevitably uneven in style and quality, and not every contributor can be rated as a "top authority."

The articles are of necessity synoptic if not telegraphic. The practitioner will usually find the information he requires, but the reader who wishes a discussion of details and theory will have to look elsewhere. The general level of coverage is good, and one is therefore surprised to find dermatomyositis and systemic lupus erythematosis included in the section on dermatology—certainly not a current concept of classification.

The book is well printed, bound, and indexed, and several tables will be welcome to most physicians. They include a "roster of drugs," pediatric dosages, normal laboratory values, etc. In addition there is a section on poisons which contains a reference list of poisonous substances in common household and commercial products.—*J.D.R.*

Strabismus Ophthalmic Symposium II. Edited by James H. Allen, M.D. Published by C. V. Mosby Company, St. Louis. 552 pages, 251 illustrations. Price $16.

This volume represents the opinions of leading ophthalmologists on diagnosis and treatment of strabismus. The anatomy of the extraocular muscles

is well compiled and illustrated. The chapters outlining non-surgical treatments of strabismus are worthy of review by all ophthalmologists. This is not meant to be a surgical text; only some specific techniques are described in the surgical treatment of strabismus.

The text compiles the series of lectures on strabismus given for the symposium at the New Orleans Academy of Ophthalmology. The text presents a well edited result of these separate lectures.—*D.O.H.*

General Pathology. Second Edition. Edited by Sir Howard Florey. Based on lectures delivered at the Sir William Dunn School of Pathology, University of Oxford. Published by W. B. Saunders Company, Philadelphia. 932 pages, illustrated. Price $16.

As the title indicates, the book deals with general pathology as an introduction to conventional special pathology with no pretext to cover the latter subjects. Much of the latter part of the book deals with mircobiology.

The author's aim to arouse an inquiring attitude in the reader should be achieved. The book would seem best suited as ancillary material for the beginner in the study of pathology. A significant knowledge of the history of medicine will also be acquired.

Figure 9, page 477, would appear to be a neurilemmoma or leiomyoma rather than a "benign fibroma" which it is intended to illustrate.—*J.O.B.*

Diabetes As A Way of Life. By T. S. Danowski, M.D. Published by Coward-McCann, Inc., New York City. 177 pages. Price $3.50.

This book is a guide for diabetics. There is no doubt that it contains information which would be helpful and reassuring in assisting the diabetic to live successfully and with confidence. The book is comprehensive in its scope. There are 16 chapters and an appendix which explain the nature of diabetes as the problem of an individual, his family, and close associates in the community. The role of the physician is stressed but it is pointed out that "most of the time diabetes is treated either by the patient or his family."

There are details about food, diets, and metabolism; the use of insulin, acidosis, coma, insulin shock, diabetes in children, pregnancy and diabetes, infections and diabetes, medical quacks, sulfa drug derivatives given orally as substitutes for insulin, the social aspects of diabetes, and much other pertinent information. There are numerous charts, diagrams, illustrations, and tables.

The information is not presented in an overly technical manner, but there is such a vast amount of detail that only a rather intelligent adult with the ability to study and readily organize what he learns would be expected to profit by reading and self-study of this guide. A newly diagnosed diabetic might be overwhelmed and confused by this wealth of information.

This would be an excellent guide to the physician in indicating the many things a diabetic and his family should know about the disease. It would also serve well as a textbook for diabetics enrolled in classes of instruction and information provided by some physicians, clinics, or local health departments. The physician or nurse would not have time to guide each individual diabetic patient or family member through each chapter of the book.

Nowhere does this guide suggest that diabetes is a public health problem, that is, a health problem subject to some alleviation through organized community effort. There is, however, a "roster of lay diabetes societies" and a reference address of the American Diabetes Association.—*R.H.R.*

The Peter T. Bohan Memorial Lectures on Medicine. First Series. By Peter T. Bohan, M.D. Published by University of Kansas Press, Lawrence, Kansas. 128 pages. Price $3.00.

This readable little book printed with large type and with wide margins records the Peter T. Bohan lectures from the year 1947, when Dr. Russell L. Haden gave the initial address, through 1954, when Dr. Roy W. Scott presented his lecture. These seven lectures represent rather widely varied topics, all with an intimate application to the practice of internal medicine.

This is not a book to be laboriously studied but is delightful bedside reading, and for those who attended the lectures it will refresh the memory of the unique and learned lecturers who delivered them. There is little in this book that is outdated by the intervening years, and the personal anecdotes and the kindly philosophies in these addresses are heart-warming and worthy of remembrance.—*J.L.M.*

For Future Doctors. By Alan Gregg, M.D. Published by the University of Chicago Press, 1957. 165 pages.

Alan Gregg will long be remembered as an outstanding representative of that rare profession, the philanthropic investigator. He graduated from Harvard with an M.D. and immediately joined the staff of the Rockefeller Foundation, serving first as its associate director of medical education and then as director of medical sciences for 30 years, at which time he became vice-president. This little book is a series of 11 lectures and articles related to medical

education and its related fields; in them one finds much that even experienced physicians would not only enjoy but from which they would benefit.

As an essayist he has a refreshing style which contrasts markedly from the usual articles related to medical education and research. The following two examples will bear this out: "And they say medical education is expensive! It is unsatisfactory medical education that is expensive." . . . "This is what I mean when I say there are plenty of M.D.'s in this world but not enough real doctors."

This book, no doubt, was written for future doctors. Those who are responsible for the guidance, recruiting, training, and placement of young men and women in the profession will be pleased with its pithy, wholesome advice, for Dr. Alan Gregg was a world traveler acquainted not only with American ways but versed in the methods of older cultures. It is a compilation of delightful essays that will long endure.—*P.G.R.*

Accreditation of Nursing Homes

The need for accrediting nursing homes and other institutions providing care for chronically ill patients is so acute that unless a voluntary program is established, government will fill the void, the director of the Joint Commission on Accreditation of Hospitals said recently.

Dr. Kenneth B. Babcock, director of the Joint Commission, discussed accreditation developments during the five years since the founding of the Commission in an interview published in the January 1 issue of *Hospitals,* Journal of the American Hospital Association.

Answering a question on the priority of establishing an accreditation program for nursing home and chronic care facilities, Dr. Babcock said, "It would have topmost priority as a need. I am unwilling to say the Joint Commission on Accreditation is the vehicle which should do it.

"The problem is so pressing that if the voluntary agencies like the member organizations of the Joint Commission do not take it over, the government is going to have to," he said.

Doctor Babcock pointed out that, "The idea of better quality health care in our communities through surveying of every facet of care whether it be domiciliary or actual clinical medical care is an important one."

Pointing out that the standards of the Joint Commission are "a floor, not a ceiling," Doctor Babcock said that the future program of the Commission will undoubtedly include "a tightening of the present standards and an increase in the standards to the extent that it may be harder to become accredited than it has been in the past."

The Joint Commission on Accreditation of Hospitals in a voluntary program surveys hospitals and accredits them providing they meet specified standards of patient care. The Joint Commission is sponsored by the American College of Physicians, the American College of Surgeons, the American Hospital Association, the American Medical Association, and the Canadian Medical Association.

Committee Studies Medicolegal Problems

A concerted educational program on medical professional liability is being formulated by a joint committee of the American Medical Association and the American Hospital Association. Among other things, the liaison committee plans to study current medicolegal advisory set-ups in a number of states, the liability of charitable and governmental hospitals, and ways of promoting postgraduate education in the professional liability field. Progress reports will be submitted to the boards of trustees of the two associations, and physicians and hospital personnel will be kept informed on all action taken through the organizations' official publications.

New Medicolegal Film in June

The A.M.A. Law Department announces that "traumatic neurosis" will be the subject of the third film in the series of six medicolegal films to be produced in cooperation with the Wm. S. Merrill Company of Cincinnati. The film will delve into some of the problems that face psychiatrists and neurologists in identifying patients' psychoses resulting from various traumatic experiences. Physicians will have an opportunity to see the premier showing of this film at the A.M.A's annual meeting in June in San Francisco.

Previous motion pictures in the series include "The Medical Witness" and "The Doctor Defendant." Other films in the series will deal with in-hospital medical professional liability problems and forensic pathology.

Cumulative Index on Cancer

The National Cancer Institute has just issued a cumulative index of the *Journal of the National Cancer Institute* for the period 1940-1956. Included are a subject index, with comprehensive cross references, an author index, and a listing of current nomenclature for certain chemical compounds mentioned in the index. It gives a comprehensive view of a large segment of research in the field of cancer during the 16-year period.

Copies of the index have been sent to all libraries and individuals now receiving the *Journal.* Some free copies are available. Single copies may be requested from the National Cancer Institute, Attention: Information Officer, Bethesda 14, Maryland.

Guide to Disability

The American Medical Association has announced publication of an important new document, a guide for physicians' use in medically rating persons under disability programs.

This guide to the evaluation of permanent impairment of the extremities and back is considered so important to physicians and administrators of many organizations vitally interested in disability that it has been published as a separate 117-page edition of the February 15 issue of the *Journal of the American Medical Association.*

Editor Austin Smith, M.D., said that it marks the first time that the *A.M.A. Journal* has ever devoted a special edition to a specific subject.

From a medical standpoint, the guide is important because evaluation or rating of permanent disability has long been recognized as a complex subject. In the past much confusion has resulted from inadequate understanding by physicians and others of: (1) The scope of *medical* responsibility in evaluation of permanent disability, and (2) The difference between "permanent disability" and "permanent impairment."

The preface of the guide states: "It is vitally important for every physician to be aware of his proper role in the evaluation of permanent disability under any private or public program for the disabled. It is equally important for him to have the necessary authoritative material to assist him in competently fulfilling his particular responsibility—the evaluation of permanent impairment."

The guide is the work of the Committee on Medical Rating of Physical Impairment, which was appointed by the A.M.A. Board of Trustees in September of 1956. This is actually the first of a series of guides which the A.M.A. committee hopes to develop with the assistance of outstanding consultants.

Members of the physical impairment committee are: Drs. Raymond M. McKeown, Coos Bay, Oregon, chairman and a member of the A.M.A. Board of Trustees; George F. Gsell, Wichita; Henry H. Kessler, Newark; Quentin W. Mack, Boise; James R. McVay, Kansas City, Missouri, and O. A. Sander, Milwaukee. Mr. George W. Cooley, Chicago, secretary, and Mrs. Marjorie W. Grigsby, Chicago, research associate.

The guide defines the following generally-used terms in programs for the disabled:

1. *Permanent Disability.* This is not a purely medical condition. A patient is "permanently disabled" or "under a permanent disability" when his actual or presumed ability to engage in gainful activity is reduced or absent because of "impairment" and no fundamental or marked change in the future can be expected.

2. *Permanent Impairment.* This is a purely medical condition. Permanent impairment is any anatomic or functional abnormality or loss after maximal medical rehabilitation has been achieved and which abnormality or loss the physician considers stable or nonprogressive at the time evaluation is made. It is always a basic consideration in evaluation of permanent disability. It should be remembered, however, that permanent impairment is a contributing factor to, but not necessarily an indication of, the extent of a patient's permanent disability.

3. *Evaluation (Rating) of Permanent Disability.* This is an administrative, not medical, responsibility and function. Evaluation of permanent disability is an appraisal of the patient's present and probable future ability to engage in gainful activity as it is affected by non-medical factors such as age, sex, education, economic and social environment, and the medical factor—permanent impairment. Non-medical factors have proved extremely difficult to measure. For this reason "permanent impairment" is in fact the sole or real criterion of "permanent disability" far more often than is readily acknowledged. Evaluation of permanent disability forms the basis for a determination of permanent disability which is an administrative decision as to the patient's entitlement.

4. *Evaluation (Rating) of Permanent Impairment.* This is a function which physicians alone are competent to perform. Evaluation of permanent impairment defines the scope of medical responsibility and therefore represents the physician's role in the evaluation of permanent disability. Evaluation of permanent impairment is an appraisal of the nature and extent of the patient's illness or injury as it affects his personal efficiency in the activities of daily living. These activities are self care, normal living postures, ambulation, elevation, traveling, and non-specialized hand activities. It is not and never can be the duty of physicians to evaluate the social and economic effects of permanent impairment. These effects must be evaluated by administrators in making determinations of permanent disability.

Competent evaluation of permanent impairment requires adequate and complete medical examination, accurate objective measurement of function, and avoidance of subjective impressions and non-medical factors such as the patient's age, sex, or employability.

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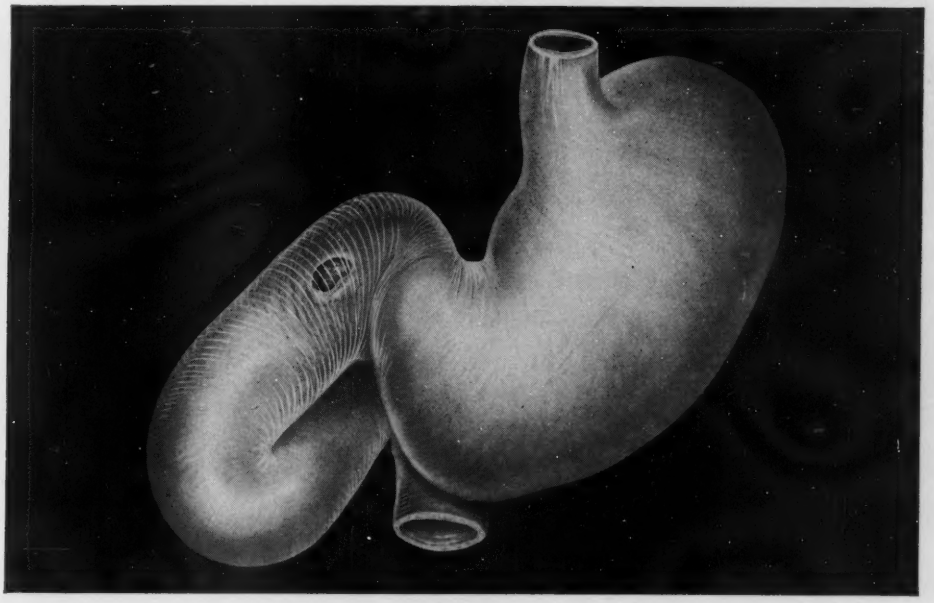

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*Lichstein, J.; Morehouse, M. G., and Osmon, K. L.: Pro-Banthīne in the Treatment of Peptic Ulcer. A Clinical Evaluation with Gastric Secretory, Motility and Gastroscopic Studies. Report of 60 Cases, Am. J. M. Sc. *232*:156 (Aug.) 1956.

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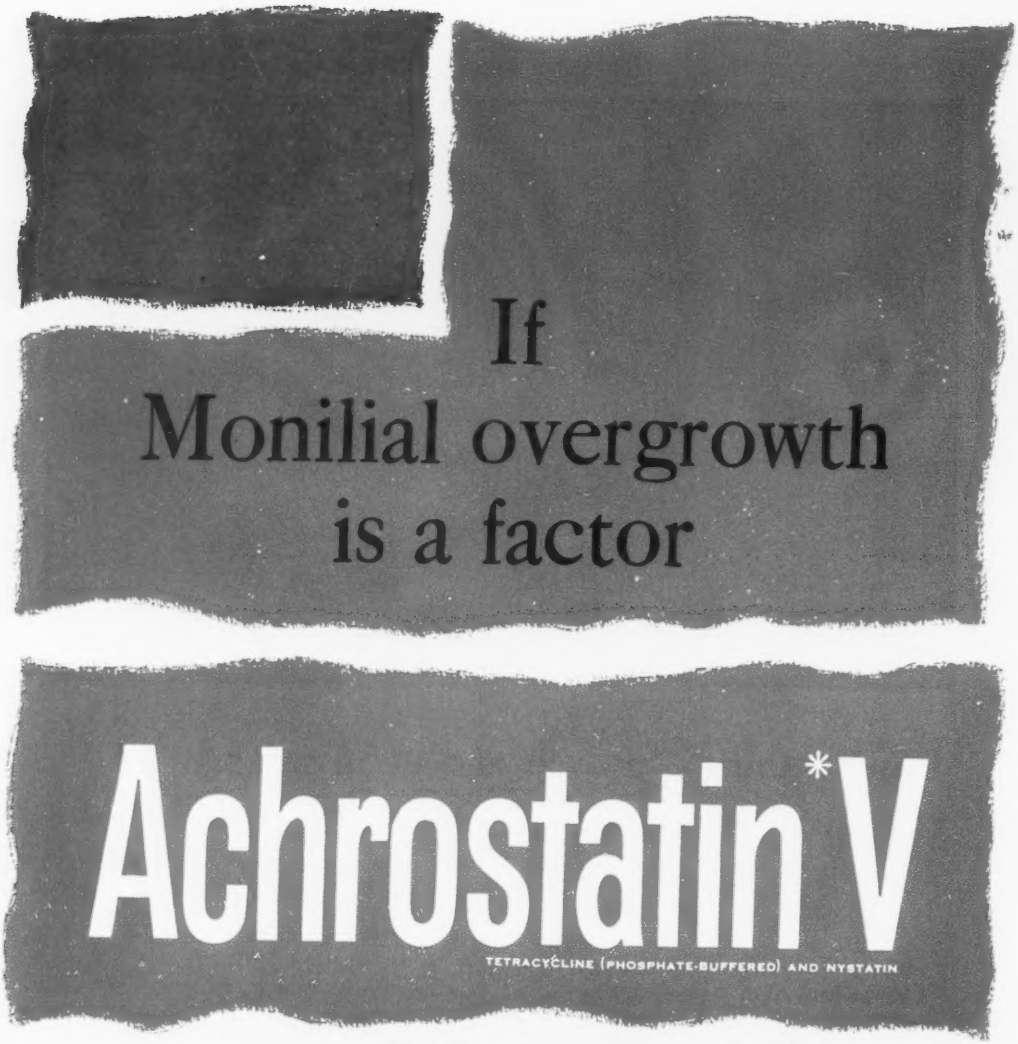

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Riseman, J. E. F., Altman, G. E., and Koretsky, S.: Nitroglycerin and Other Nitrites in the Treatment of Angina Pectoris, Circulation (Jan.) 1958.

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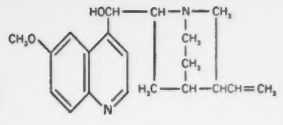

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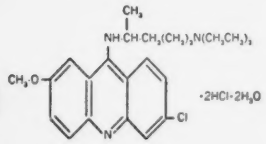

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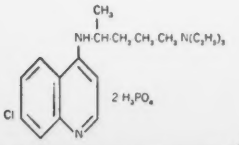

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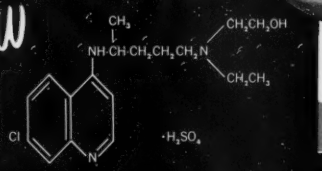

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REFERENCES:

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2. Schoch, A.G., and Alexander, L.J.: The Schoch section, *Bull. A. Mil. Dermatologists* 5:25, Nov., 1956.
3. Cornbleet, Theodore: Arch. Dermat. 73:572, June, 1956.

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why PETN? *For cardiac effect:* PETN is ". . . the most effective drug currently available for prolonged prophylactic treatment of angina pectoris."[1] Prevents about 80% of anginal attacks.

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1. Russek, H. I.: Postgrad. Med. *19*:562 (June) 1956.

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CARTRAX should be taken 30 to 60 minutes *before* meals, on a continuous dosage schedule. Use PETN preparations with caution in glaucoma.

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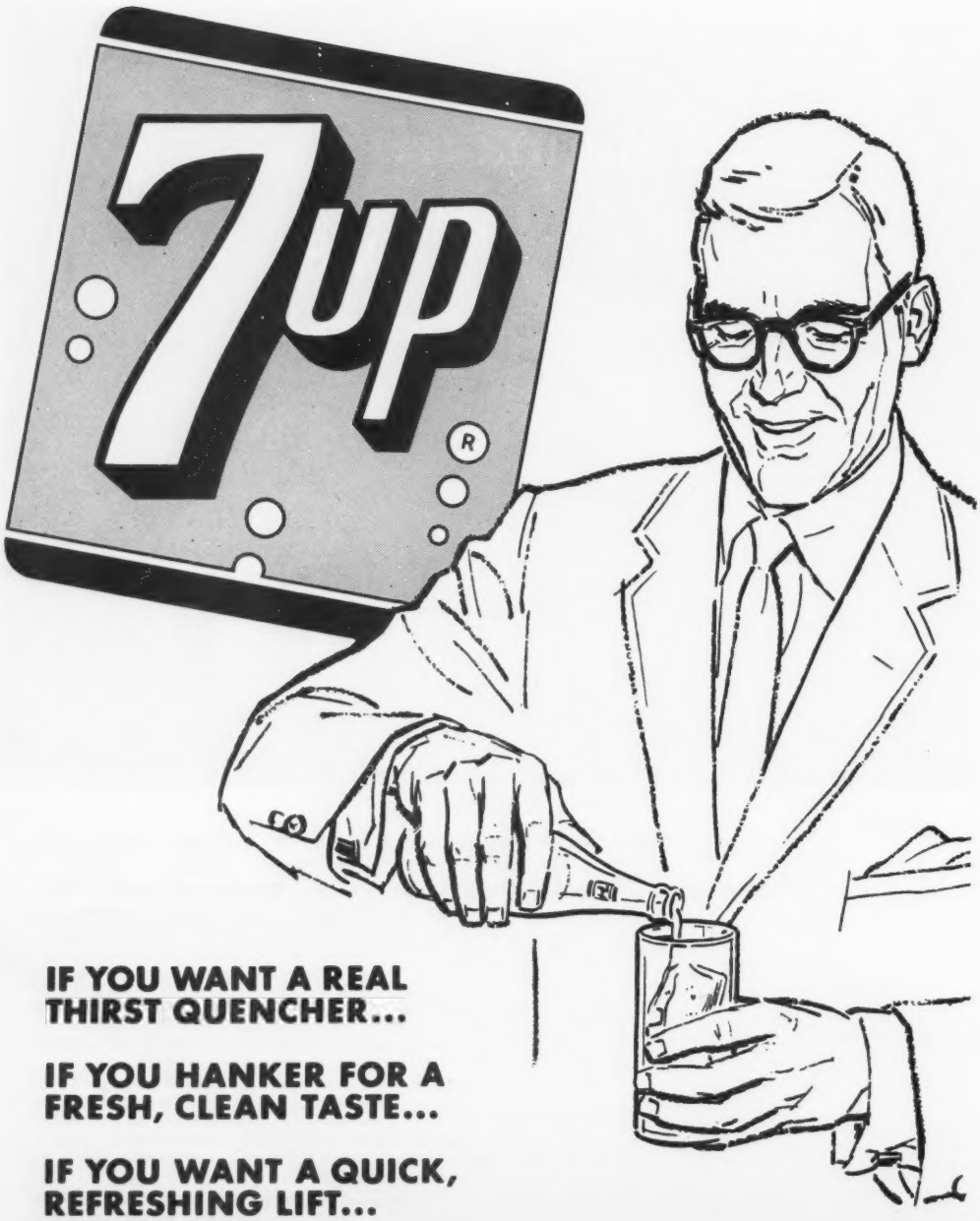

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IF YOU HANKER FOR A FRESH, CLEAN TASTE...

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caused by pollen allergies

TRIAMINIC stops rhinorrhea, congestion and other distressing symptoms of summer allergies, including hay fever. Running nose, watery eyes and sneezing are best relieved by antihistamine *plus* decongestant action—systemically—with TRIAMINIC.

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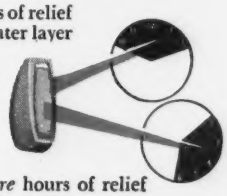
TRIAMINIC brings relief in minutes—lasts for hours. Running noses stop, congested noses open—and stay open for 6 to 8 hours.

Triaminic provides around-the-clock freedom from allergic congestion with just one tablet t.i.d. because of the special timed-release design.

first—3 to 4 hours of relief from the outer layer



then—3 to 4 *more* hours of relief from the inner core

Dosage: One tablet in the morning, mid-afternoon and at bedtime. In postnasal drip, one tablet at bedtime is usually sufficient.

Each timed-release TRIAMINIC Tablet contains:

Phenylpropanolamine HCl	50 mg.
Pheniramine maleate	25 mg.
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TRIAMINIC FOR THE PEDIATRIC PATIENT

TRIAMINIC Juvelets*, providing easy-to-swallow half-dosages for the 6- to 12-year-old child, with the timed-release construction for prolonged relief.

TRIAMINIC Syrup, for those children and adults who prefer a liquid medication. Each 5 ml. teaspoonful is equivalent to ¼ Triaminic Tablet or ½ Triaminic Juvelet.

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Standard formulas for WELL INFANTS

Since age, appetite and digestive capacity vary, hospital practice favors an individualized formula for each infant.

The total daily feeding usually amounts to 2 ounces of milk *per pound of body weight*, plus 1 ounce of Karo Syrup with enough water to satisfy fluid requirements.

The newborn usually takes from 2 to 3 ounces of formula per feeding; the very young infant, 4 to 5 ounces—the daily quota yielding over 50 calories for each pound the infant weighs. The quantity per feeding should not exceed 8 ounces.

Newborns are fed at 3 to 4 hour intervals throughout the 24-hour period—the 2 or 3 A.M. feeding is discontinued after the neonatal period. In the third or fourth month the 10 or 12 P.M. feeding is discontinued, once the infant fails to awaken for the bottle. Standard but individualized formulas which constitute the hospital infant feeding regimen are shown here.

WHOLE MILK FORMULAS

Age Months	Cow's Milk Fluid Oz.	Water Oz.	KARO Tbsp.	Each Feeding Oz.	Feedings in 24 Hrs.	Total Calories
Birth	10	10	2	3	6	320
1	12	13	2½	4	6	390
2	15	13	3	4½	6	480
3	17	9	3	5	5	520
4	20	11	3½	6	5	610
5	23	11	4	6½	5	700
6	26	10	4	7	5	760

EVAPORATED MILK FORMULAS

Age Months	Evap. Milk Fluid Oz.	Water Oz.	KARO Tbsp.	Each Feeding Oz.	Feedings in 24 Hrs.	Total Calories
Birth	6	12	2	3	6	380
1	8	16	3	4	6	532
2	9	14	3	4½	5	576
3	10	15	3½	5	5	650
4	12	18	4	6	5	768
5	12	21	4	6½	5	768
6	13	22	4	7	5	768

ADVANTAGES OF KARO® IN INFANT FEEDING

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Concentration: Volume for volume Karo Syrup furnishes twice as many calories as similar milk modifiers in powdered form.

Purity: Karo Syrup is processed at sterilizing temperatures, sealed for complete hygienic protection and devoid of pathogenic organisms.

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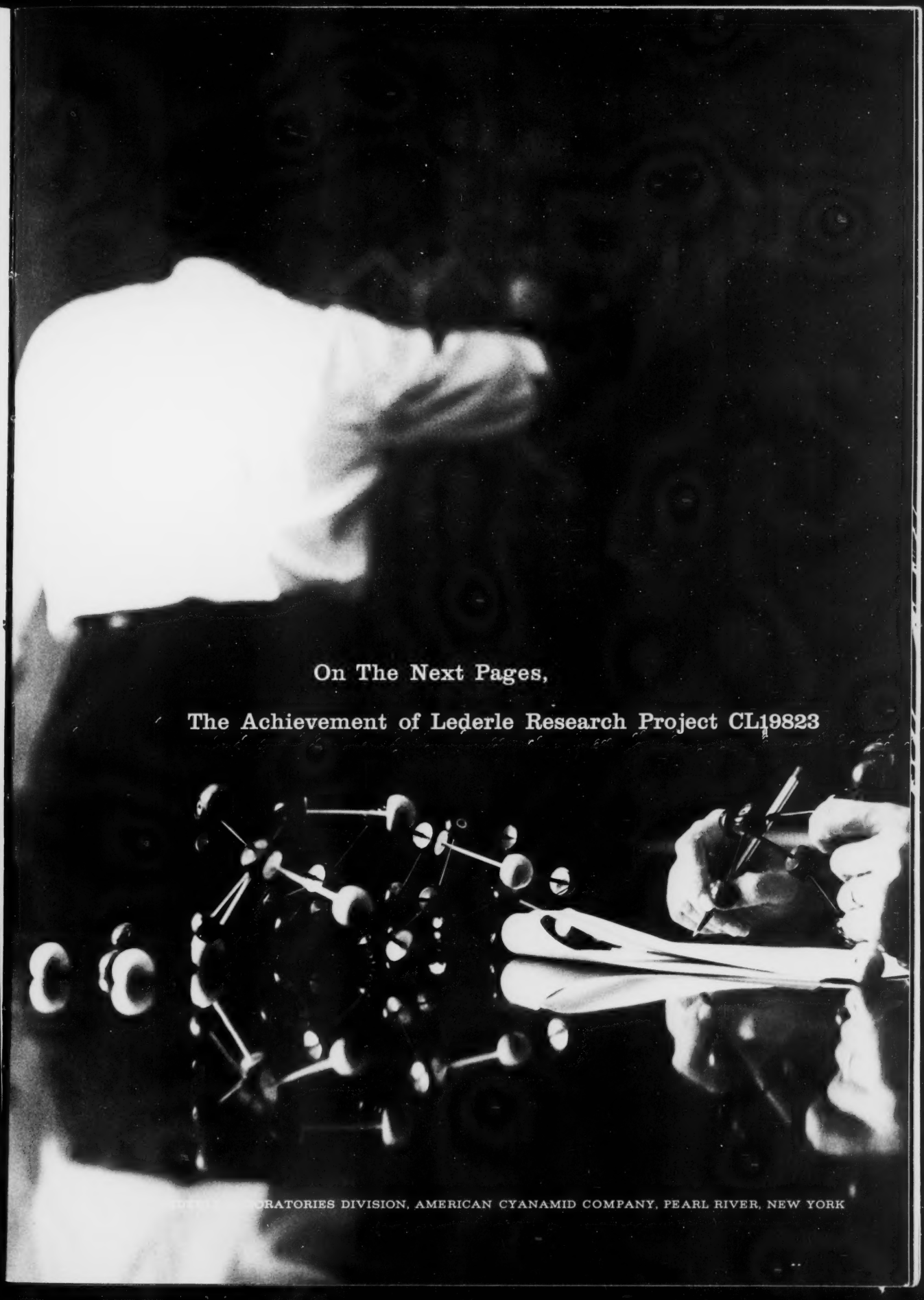
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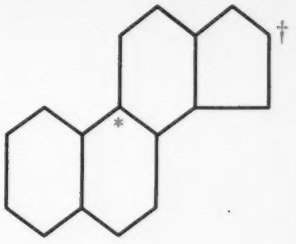
Arist

a new corticosteroid created to minimize
major deterrents to all previous steroid therapy



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Triamcinolone LEDERLE
9 alpha-fluoro-16 alpha-hydroxyprednisolone

- **a new high** in anti-inflammatory effects with lower dosage (averages 1/3 less than prednisone)
- **a new low** in the collateral hormonal effects associated with all previous corticosteroids
  - No sodium or water retention
  - No potassium loss
  - No interference with psychic equilibrium
  - Low incidence of peptic ulcer and osteoporosis

Biological Effects of Aristocort

with

particular emphasis

on:

Kidney function

Animal studies on ARISTOCORT[1] have not demonstrated any interference with creatinine or urea clearance. Autopsy surveys of organs of animals on prolonged study of this medication have shown no renal damage.

Sodium and water

ARISTOCORT produced an increase of 230 per cent of water diuresis and 145 per cent sodium excretion when compared to control animals.[1] Metabolic balance studies in man revealed an average negative sodium balance of 0.8 Gm. per day throughout a 12-day period on a dosage of 30 mg. per day.[2] Additional balance studies showed actual sodium loss when ARISTOCORT was given in doses of 12 mg. daily.[3] Other investigators observed significant losses of sodium and water during balance studies and that those patients with edema from some older corticosteroids lost it when transferred to ARISTOCORT.[4,5] In two studies of various rheumatic disorders (194 cases) on prolonged treatment, sodium and water retention was not observed in a single case.[6,7]

Potassium and chlorides

There was no active excretion of potassium or chloride ions in animals given maintenance doses of ARISTOCORT 25 times that found to be clinically effective.[1] Potassium balance studies in humans[2,3] revealed that negative balance did not occur even with doses somewhat higher than those employed for prolonged therapy in rheumatoid arthritis. Hypokalemia, hyperkalemia or hypochloremia did not occur, when tested, in 194 patients with rheumatoid arthritis treated for up to ten and one-half months.[6,7]

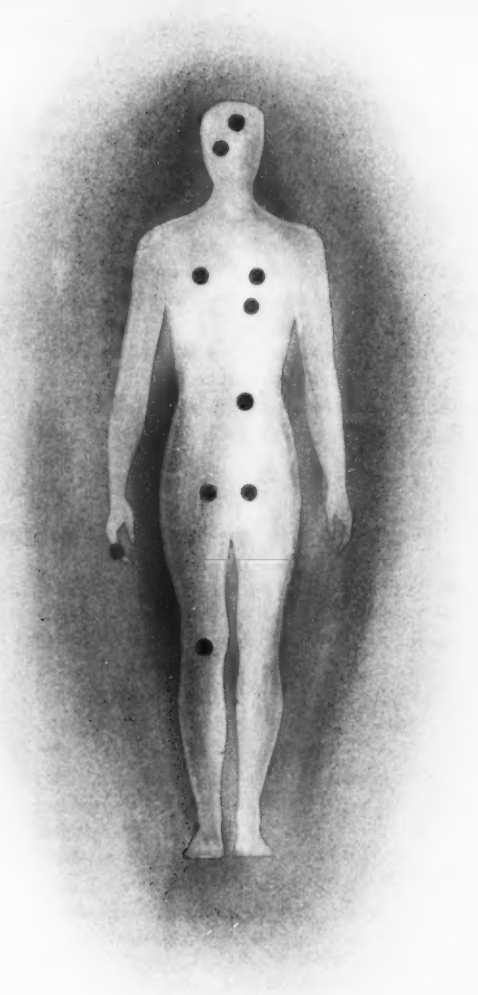
Calcium and phosphorus

Phosphate excretion in animals[1] was not changed from normal even with amounts 25 times greater (by body weight) than those known to be clinically effective. Human metabolic balance studies[3] demonstrated that no change in calcium excretion occurred on dosages usually employed clinically when the compound is administered for its anti-inflammatory effect. Even at a dosage level twice this, slight negative balance appeared only during a short period.

Protein and nitrogen balance

Positive nitrogen balance was maintained during a human metabolic study on maintenance dosage of 12 mg. per day.[3] At dosages two to three times normal levels, positive balance was maintained except for occasional short periods in metabolic studies of several weeks' duration.[2,3]

There was always a tendency for normalization of the A/G ratio and elevation of blood albumin when ARISTOCORT was used in treating the nephrotic syndrome.[8]



Liver glycogen deposition and inflammatory processes

An intimate correlation exists between the ability of a corticosteroid to cause deposition of glycogen in the liver and its capacity to ameliorate inflammatory processes.

In animal liver glycogen studies, relative potencies of ARISTOCORT over cortisone of up to 40 to 1 have been observed. Compared to ARISTOCORT, five to 12 times the amount of prednisone is required to produce varying but equal amounts of glycogen deposition in the liver.[1]

Most patients show normal fasting blood sugars on ARISTOCORT. Diabetic patients on ARISTOCORT may require increased insulin dosage, and occasional latent diabetics may develop the overt disease.

Anti-inflammatory potency of ARISTOCORT was determined by both the asbestos pellet[1] and cottonball[9] tests. It was found to be nine to 10 times more effective than hydrocortisone in this respect.

Gastric acidity and pepsin

The precise mode of ulcerogenesis during treatment with corticosteroids is not known. There is much experimental evidence for believing this may be related to the tendency of these agents to increase gastric pepsin and acidity—and this cannot be abolished by vagotomy, anticholinergic drugs or gastric antral resection.[10] Clinical studies[11] of patients on ARISTOCORT revealed that uropepsin excretion is not elevated. Further, their basal acidity and gastric response to histamine stimulation were within normal limits.

Central nervous system

The tendency of corticosteroids to produce euphoria, nervousness, mental instability, occasional convulsions and psychosis is well known.[12] The mechanism underlying these disturbances is not well understood.

ARISTOCORT, on the contrary, does not produce a false sense of well being, insomnia or tension except in rare instances. In the treatment of 824 patients, for up to one year, not a single case of psychosis has been produced. In general, it appears to maintain psychic equilibrium without producing cerebral stimulation or depression.

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Lederle

The Promise of Aristocort in Reduction of Side Effects

It is axiomatic to affirm that the undesirable collateral hormone effects of corticosteroids increase in frequency and severity the higher the dosage and the longer used.

It has also become well recognized that the most serious of the major side effects from long-term corticosteroid treatment are peptic ulcers, osteoporosis with fracture, drug psychosis and euphoria, and sodium and water retention leading often to general tissue edema and hypertension.

It is significant that of the close to 400 patients on the lower dosage schedules found effective in bronchial asthma and dermatologic conditions, only 1 case of peptic ulceration has developed. No other of the above side effects have been observed even though ARISTOCORT was administered continuously to them for periods as long as one year.

The treatment of rheumatoid arthritis with steroids appears to result in the highest incidence of side effects. For this reason, the side effects associated with ARISTOCORT therapy in 292 patients with rheumatoid arthritis are reported below.

Peptic Ulcer

The occurrence of peptic ulcer in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is approximately 1 per cent (2 of the 3 occurred in patients transferred from prednisone). In the remaining 532 cases recently analyzed, only one ulcer has been discovered in a patient who apparently had no ulcer when he was changed from another steroid.

Osteoporosis and Compression Fractures

The occurrence of osteoporosis with compression fracture in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is 0.33 per cent (1 case[1]). Although these results are encouraging, determination of the true incidence of osteoporosis will have to await the passage of more time.

Euphoria and Psychosis

The euphoria so commonly produced by all previous corticosteroids has seemed a most desirable attribute to patients. In penalty, however, they have often later to pay for this by mental disturbances, varying from mild and transitory to severe depression and psychosis,[2] and toxic syndromes producing even convulsions and death.[3]

Since the onset of these complications is not directly related to duration of steroid administration,[4] the fact that not one case of psychosis occurred in 824 patients treated with ARISTOCORT, is most encouraging.

Sodium Retention—Hypertension—Potassium Depletion

When 17 patients were changed from prednisone to ARISTOCORT, 11 rapidly lost weight although only one had had visible edema.[5] Sodium and water retention, hypokalemia or hyperkalemia and steroid hypertension did not appear in 194 rheumatoid arthritis patients treated with ARISTOCORT.[1,6]

The interrelation between blood and body sodium, and steroid hypertension has long been generally appreciated.[7,8] Except in rare instances, or when unusually high doses are used (e.g., leukemia), the problem of edema and hypertension caused by sodium and water retention, has been eliminated with ARISTOCORT.

Minor Side Effects

Collateral hormonal effects of less serious consequence occurred with approximately the same frequency as with the older corticosteroids.[1] These include erythema, easy bruising, acne, hypertrichosis, hot flashes and vertigo. Several investigators have reported symptoms not previously described as occurring with corticosteroid therapy, e.g., headaches, lightheadedness, tiredness, sleepiness and occasional weakness.

Moon facies and buffalo humping have been seen in some patients on ARISTOCORT. However, ARISTOCORT therapy, in many instances, resulted in diminution of "Cushingoid" signs induced by prior therapy. Where this occurs, it may be related to reduced dosage on which patients can be maintained.

Reduction of dosage by one-third to one-half

In a double-blind study of comparative dosage in patients with rheumatoid arthritis,[9] 70 per cent of the cases were as well controlled on a dose of ARISTOCORT one-half that of prednisone. A general recommendation can be made that ARISTOCORT be used in doses two-thirds that of prednisone or prednisolone in the treatment of rheumatoid arthritis. There are individual variations, however, and each patient should be carefully titrated to produce the desired amount of disease suppression.

Comparative studies, of patients changed from prednisone, indicate reduced dosage of ARISTOCORT in bronchial asthma and allergic rhinitis (33 per cent),[5] and in inflammatory and allergic skin diseases (33-50 per cent).[10,11]

General Precautions and Contraindications

Administration of ARISTOCORT has resulted in lower incidence of major serious side effects, and in fewer of the troublesome minor side effects known to occur with all previously available corticosteroids. However, since it is a highly potent glucocorticoid, with profound metabolic effects, all traditional contraindications to corticosteroid therapy should be observed.

No precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

Since ARISTOCORT has less of the traditional side effects, the appearance of sodium and water retention, potassium depletion, or steroid hypertension cannot be used as signs of overdosage. As a rule patients will lose some weight during the first few days of treatment as a result of urinary output, but then the weight levels off.

Patients do not develop the abnormally voracious appetite common to previous corticosteroid administration. In fact, some patients experienced anorexia, and it is advisable to inform patients of this and to recommend they maintain a normal intake of food, with emphasis on liberal protein intake.

While precipitation of diabetes, peptic ulcer, osteoporosis, and psychosis can be expected to appear rarely from ARISTOCORT, they must be searched for periodically in patients on long-term steroid therapy.

Traditional precautions should be observed in gradually discontinuing therapy, in meeting the increased stress of operation, injury and shock, and in the development of intercurrent infection.

There is one overriding principle to be observed in the treatment of any disease with ARISTOCORT. *The amount of the drug used should be carefully titrated to find the smallest possible dose which will suppress symptoms.*

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The Promise of Aristocort in Rheumatoid Arthritis

ARISTOCORT *therapy has been intensely and extensively studied for periods up to one year on 292 patients with rheumatoid arthritis.*

Significant is the fact that most patients were *severe* arthritics, transferred to ARISTOCORT from other corticosteroids because satisfactory remission had not been attained, or because the seriousness of collateral hormonal effects had made discontinuance desirable.

Results of treatment

Freyberg and associates[1] treated 89 patients with rheumatoid arthritis (A. R. A. Class II or III and Stage II or III). Of these, 51 were on ARISTOCORT therapy from three to over 10 months. In all but a few patients, satisfactory suppression of rheumatoid activity was obtained with 10 mg. per day. Thirteen were controlled on 6 mg. or less a day, and for periods to 180 days. The investigators reported therapeutic effect in most cases to be A. R. A. Grade II (impressive) and that marked reduction in sedimentation rates occurred.

Another interesting observation in this study: Of the 89 patients treated, 12 had active ulcers, developed from prior steroid therapy. *In six patients, the ulcers healed while on doses of* ARISTOCORT *sufficient to control arthritic symptoms.*

Hartung[2] treated 67 cases of rheumatoid arthritis for up to 10 months. He found the optimum maintenance dose to be 11 mg. per day. Nineteen of these patients were treated for six to 10 months with an "excellent" therapeutic response.

Dosage and course of therapy

The initial dosage range recommended is 14 to 20 mg. per day—depending on the severity and acuteness of signs and symptoms. Dosage is divided into four parts and given with meals and at bedtime. Anti-rheumatic effect may be evident as early as eight hours, and full response often obtained within 24 hours. This dosage schedule should be continued for two or three days, or until all acute manifestations of the disease have subsided, whichever is later.

The maintenance level is arrived at by reduction of the total daily dosage in decrements of 2 mg. every three days. The range of maintenance therapy has been found to be from 2 mg. to 15 mg. per day—with only a very occasional patient requiring as much as 20 mg. per day. Patients requiring more than this should not be long continued on steroid therapy.

The aim of corticosteroid therapy in rheumatoid arthritis is to suppress the disease only to the stage which will enable the patient to carry out the required activities of normal living or to obtain reasonable comfort. The maintenance dose of ARISTOCORT to achieve this end is arrived at while making full use of all other established methods of controlling the disease.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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1. Freyberg, R. H., Berntsen, C. A., and Hellman, L.: Paper presented at International Congress on Rheumatic Diseases, Toronto, June 25, 1957. 2. Hartung, E. F.: Paper presented at Florida Academy of General Practice, St. Petersburg, Florida, Nov, 2, 1957.

Lederle

The Promise of Aristocort in Respiratory Allergies

About 200 patients with respiratory allergies have been treated with ARISTOCORT *for continuous periods up to eight months.*

Results of treatment

Sherwood and Cooke[1,2] gave ARISTOCORT to 42 patients with bronchial asthma and allergic rhinitis. Average dose needed to control the asthmatic group was approximately 6 mg. per day (range, 2 to 14 mg.). Results, which were called "good to excellent" in all but four, were achieved on one-third less than similarly effective doses of prednisone or prednisolone.

The investigators noted other major improvements in ARISTOCORT therapy over the older steroids. There was no increase in blood pressure in any patient: *on the contrary, in 12 patients, there was reduction of pressure when they were transferred to* ARISTOCORT. One patient had required auxiliary antihypertensive drug therapy; over a nine-week period on ARISTOCORT, the pressure gradually fell from 206/100 to 136/79. In another case, the pressure slowly dropped from 205/105 to 154/86.

The number of cases in which these investigators tried ARISTOCORT in allergic rhinitis was not large enough to provide significant averages. However, the range of effective therapy was from 2 to 6 mg. per day. These strikingly low daily doses resulted in control of all signs and symptoms.

Schwartz[3] treated 30 patients with chronic, intractable bronchial asthma. At an average daily dose of 7 mg., he reported "good to excellent" results in all but one. Spies,[4] Barach[5] and Segal,[6] reported similar results at average daily maintenance doses of 4 to 10 mg. of ARISTOCORT.

Dosage and course of therapy

The initial dosage range recommended is 8 to 14 mg. of ARISTOCORT daily. Although a rare, very severe case may require more than this on the first day of therapy, these dosages will usually result in prompt alleviation of dyspnea, wheezing and cyanosis. Patients are soon able to carry out a normal span of daily activity.

The maintenance level is arrived at by reduction of the total daily dose every three days in decrements of 2 mg.; in the over-all series, the average daily dose for bronchial asthma is approximately 8 to 10 mg. and for allergic rhinitis, 2 to 6 mg. per day. All total daily doses should be divided into four parts and given with meals and at bedtime. As in every condition where corticosteroids are employed, each patient's treatment should be individualized and the maintenance arrived at by careful titration against signs and symptoms of disease.

Patients with chronic bronchial asthma may require steroid therapy for several months. And since asthma may be associated with cardiac disease, especially in the older age groups, ARISTOCORT is particularly useful because of its ability to cause excretion of sodium and water.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

Bibliography

1. Sherwood, H., and Cooke, R. A.: J. Allergy 28:97, 1957. 2. Sherwood, H., and Cooke, R. A.: Personal Communication. 3. Schwartz, E.: Personal Communication. 4. Spies, T. D.: Personal Communication. 5. Barach, A. L.: Personal Communication. 6. Segal, M. S.: Personal Communication.

Leiters

The Promise of Aristocort

in Nephrotic Syndrome

◊ *Fourteen patients with the nephrotic syndrome have been treated with* ARISTOCORT *for continuous periods of up to six weeks.*

Results of treatment

Hellman and associates[1,2] noted that ARISTOCORT, because of its favorable electrolyte effects, may well be the most desirable steroid to date in treatment of the nephrotic syndrome. However, thus far its use has been reported in only 14 children, of whom 8 had a complete diuresis and disappearance of all abnormal chemical findings. Four of the patients had diuresis, but continued to show some abnormal chemical findings, while two patients with signs of chronic renal disease failed to respond.

Dosage and course of therapy

In order to produce maximal response, 20 mg. should be given daily until diuresis occurs. The dose should then be decreased gradually and maintained around 10 mg. a day. After the patient has been in remission for some time, it may be advisable to diminish the dose gradually and discontinue ARISTOCORT.

in Pulmonary Emphysema and Fibrosis

◊ *Eleven patients with pulmonary emphysema and/or fibrosis were treated with* ARISTOCORT *for continuous periods of over two months.*

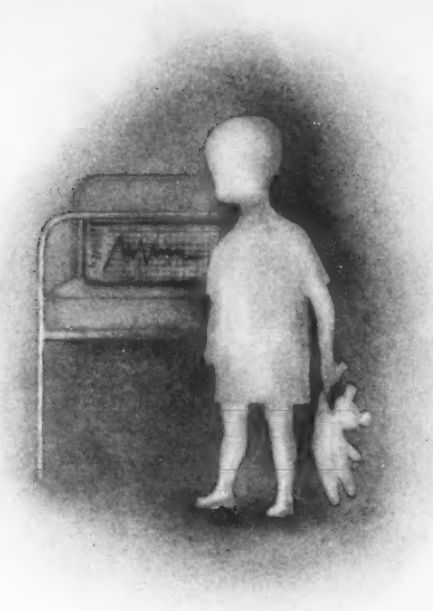
Results of treatment

Only small series of cases observed by Barach,[3] Segal,[4] and Cooke,[5] are available. Barach treated patients who were not adequately controlled by prednisone, with the same dose of ARISTOCORT with significant improvement.

Dosage and course of therapy

The initial suppressive dose range recommended is 10-14 mg. daily. Frequently, there is a prompt decrease in cyanosis and dyspnea, with increase in vital capacity.

The average maintenance dose level was 8 mg. a day. If it is desired to maintain a patient on continuous therapy for some months, dosages as low as 2 mg. a day have been successful. All decreases in dosage should be gradual and at a rate of 2 mg. decrements in total daily amount, every two to four days. The daily dosage is divided into four parts and given with meals and at bedtime.



in Neoplastic Diseases

Forty-four children and adults have been given ARISTOCORT *for palliative treatment of acute leukemia, chronic lymphatic leukemia, lymphosarcoma, lympholeukosarcoma and Hodgkin's disease.*

Results of treatment

Farber[6] has treated 22 children with acute leukemia for an average of three weeks. Of the 17 observed long enough to judge the efficacy of the medication, he rated five as excellent, three as good, two as fair and seven as poor responses.

Hellman and associates[7] gave ARISTOCORT to a group of patients with the various lymphomas in doses of 40 to 50 mg. a day—occasionally up to 100 milligrams. Treatment was continued in some cases for 17 weeks. Response was classified as good for the palliative purposes for which the drug was given.

Dosage and course of therapy

Massive initial suppressive doses of 40 to 50 mg. per day in children (1 mg./kg./day) and up to 100 mg. a day in adults have been administered.

Responses to any specific dosage in these conditions vary so widely that only a general dosage range can be indicated. Treatment must be individualized; rate of reduction in dosage and determination of maintenance levels cannot be categorized.

Miscellaneous

Patients with various other diseases have been treated by several clinical investigators. These include patients with osteoarthritis, acute bursitis, rheumatic fever, spondylitis, other "collagen-vascular" diseases (dermatomyositis, etc.), thrombocytopenic purpura, chronic eosinophilia, hemolytic anemia, diuretic-resistant congestive heart failures, and adrenogenital syndrome.

There have not been sufficient patients in any of the above categories to permit definitive treatment schedules to be finally established for ARISTOCORT. Additional studies are now in progress and physicians desiring information on any of these diseases are requested to write to Lederle Laboratories, Pearl River, New York for available data.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

Bibliography

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The Promise of Aristocort

in Inflammatory and Allergic Skin Diseases

◯ *Over 200 patients with allergic and inflammatory skin diseases (including psoriasis, atopic dermatitis, exfoliative dermatitis, pemphigus, dermatitis herpetiformis, eczematoid dermatitis, contact dermatitis and angioneurotic edema) have been treated continuously with* ARISTOCORT *for periods of up to eight months.*

Results of treatment

Rein and associates[1] treated 26 patients with severe dermatitis. Twenty-four had been on prednisone when changed to ARISTOCORT. While some had found satisfactory symptomatic relief, others had also developed side effects—moon face, buffalo hump, increased appetite with excessive weight increases and gastro-intestinal disturbances.

These investigators determined the equivalent dosage of ARISTOCORT to be approximately two-thirds that required to control symptoms on the previous corticosteroid. Thirteen of the 26, who had developed moon face, noted either an actual decrease or no further increase when transferred to ARISTOCORT. In addition: *Voracious appetites disappeared, with loss of weight in 11 patients; there was no elevation in blood pressure, and no necessity to restrict sodium or administer supplemental potassium.* Sherwood and Cooke,[2] and Shelley and Pillsbury[3] obtained similar results in allied disorders.

Hollander[4] first observed that ARISTOCORT appears to have striking affinity for the skin and great activity in controlling such diseases as psoriasis, for which other corticosteroids have been indifferently effective. Shelley and Pillsbury,[3] in 50 cases of acute extending psoriasis found that over 60 per cent were markedly improved.

Dosage and course of therapy

The recommended initial suppressive dose range is 14 to 20 mg. per day. In very severe cases, temporary dosages up to 32 mg. a day have been successfully employed. Once lesions are suppressed, gradually reduce dose to the maintenance level—which may be as low as 2 mg. per day.

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1. Rein, C. R., Fleischmajer, R., and Rosenthal, A.: J.A.M.A., *165*:1821, 1957. 2. Sherwood, H., and Cooke, R. A.: Personal Communication. 3. Shelley, W. B., and Pillsbury, D. M.: Personal Communication. 4. Hollander, J. L.: Discussion of Paper by Black, R. L., presented at International Congress on Rheumatic Diseases, Toronto, June 28, 1957.

in Disseminated Lupus Erythematosus

◯ *Forty patients with disseminated lupus erythematosus were treated with* ARISTOCORT *for continuous periods of up to nine months.*

Results of treatment

Patients have responded very promisingly to therapy. Dubois[1] has had the largest single experience (28 cases) with ARISTOCORT in the treatment of this disease. He reported 25 of the 28 responded favorably.

Freyberg,[2] Hartung,[3] Hollander,[4] Spies,[5] and Segal,[6] each in smaller series of cases, reported similarly good therapeutic responses.

Dosage and course of therapy

The initial suppressive dose recommended is 20-30 mg. daily. Once the desired effect is achieved, the dose should be reduced gradually to maintenance levels (3 to 18 mg. per day).

In severely ill patients large doses may be required for several days in order to preserve life. Even on these large doses, edema and sodium retention have not occurred.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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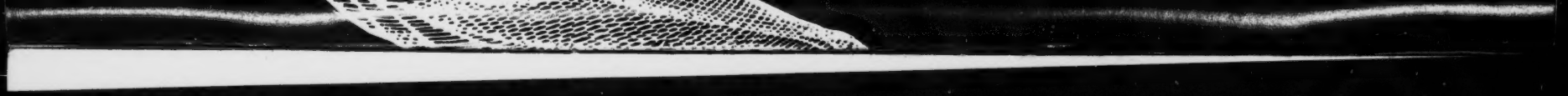

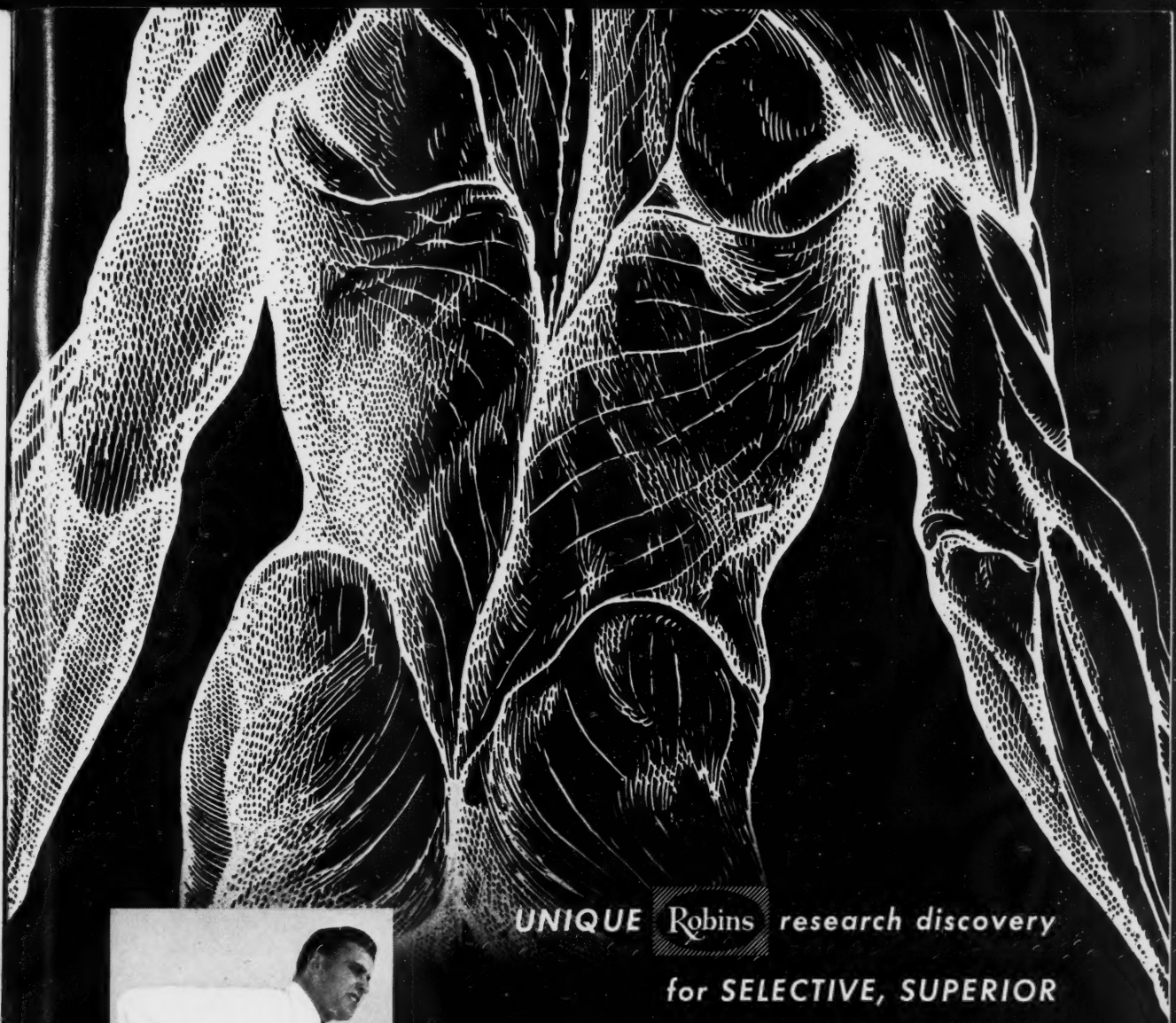

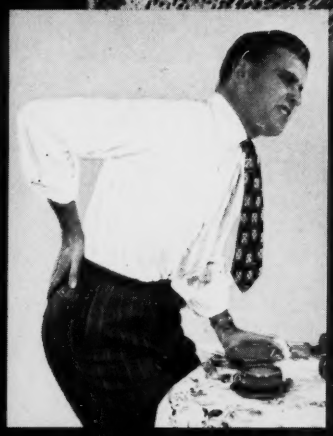

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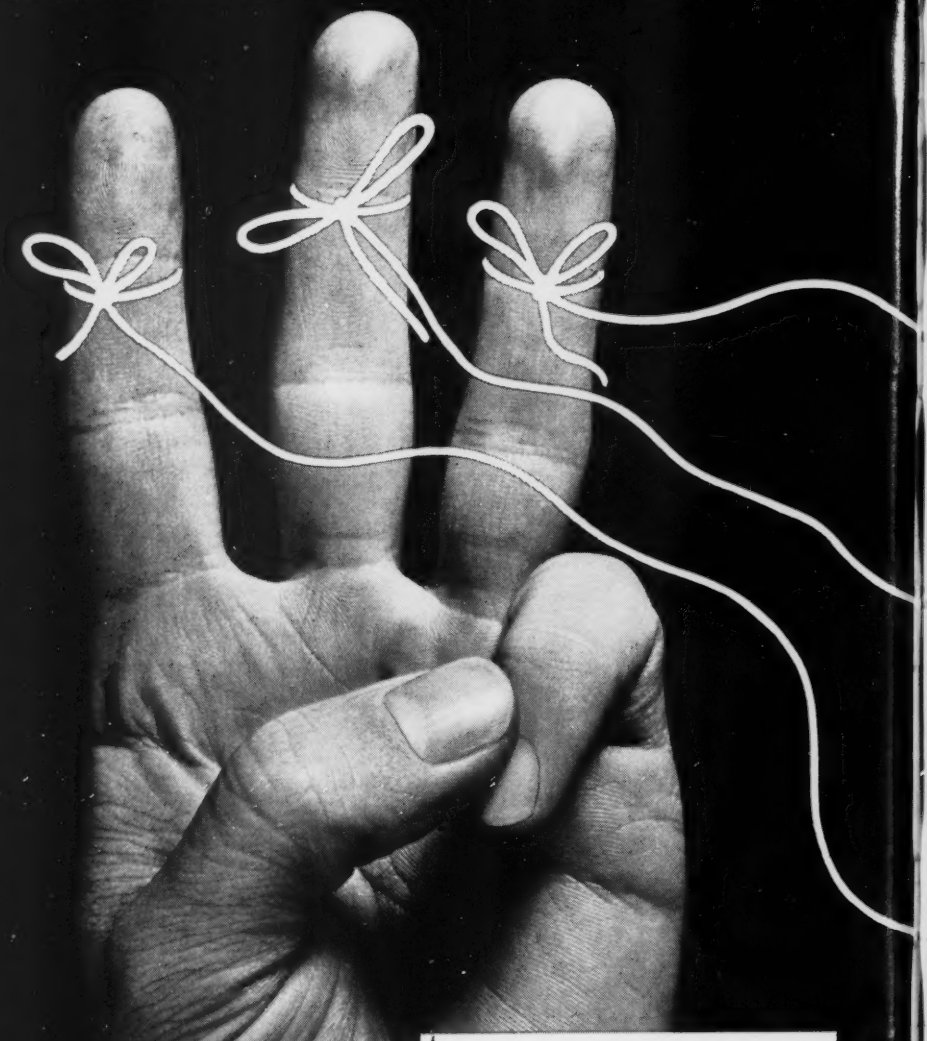

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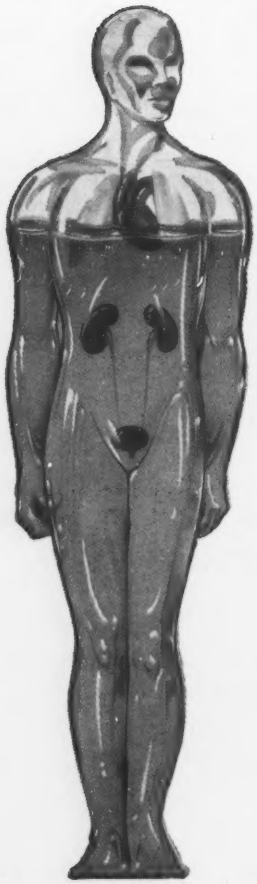

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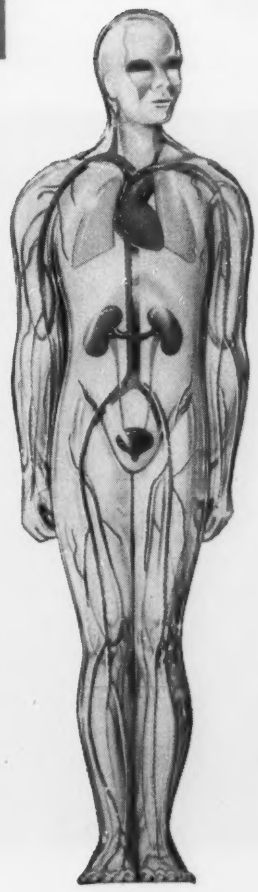

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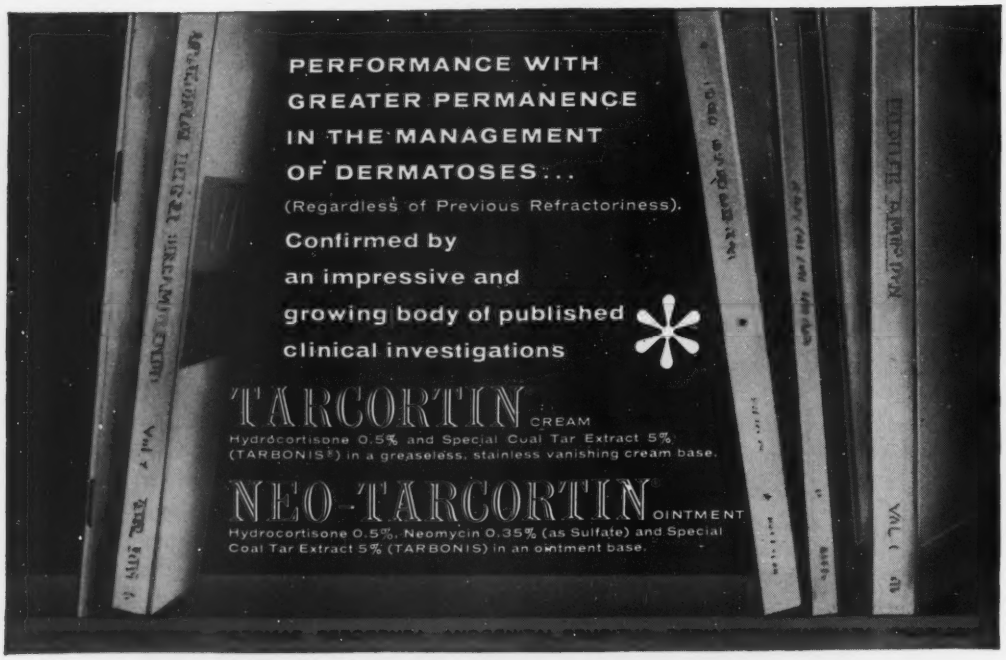
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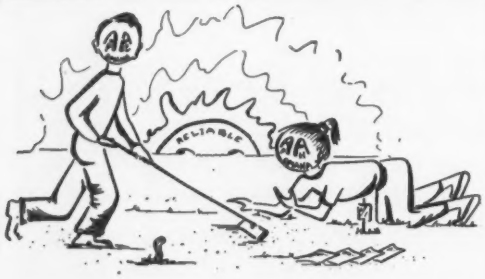

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1. Hodges, F. T.: *GP* 14:86, Nov., 1956.

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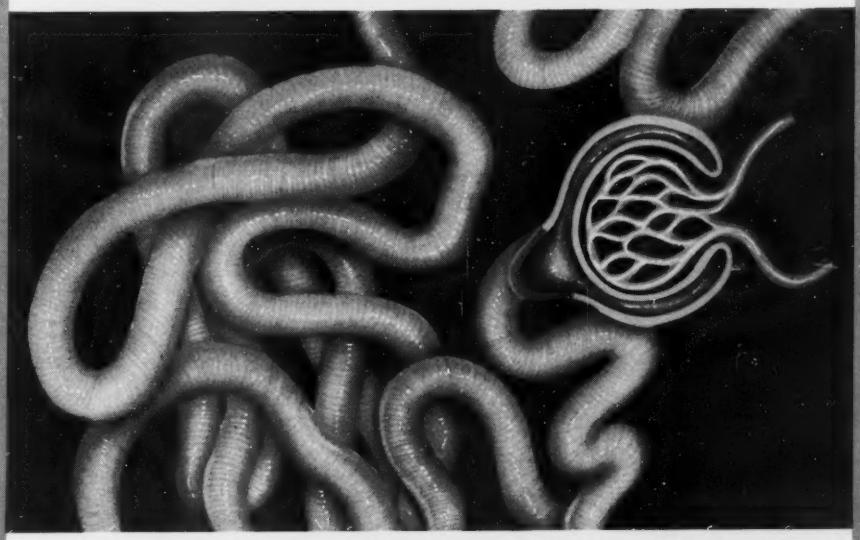

The globulins. They are more easily precipitated to form casts with blockage of renal tubules. The greater the damage to the glomeruli, the greater the proportion of urinary globulin to albumin and subsequent tubular impairment.

Source—Hoffman, W. S.: The Biochemistry of Clinical Medicine, Chicago, The Year Book Publishers, Inc., 1954, p. 233.

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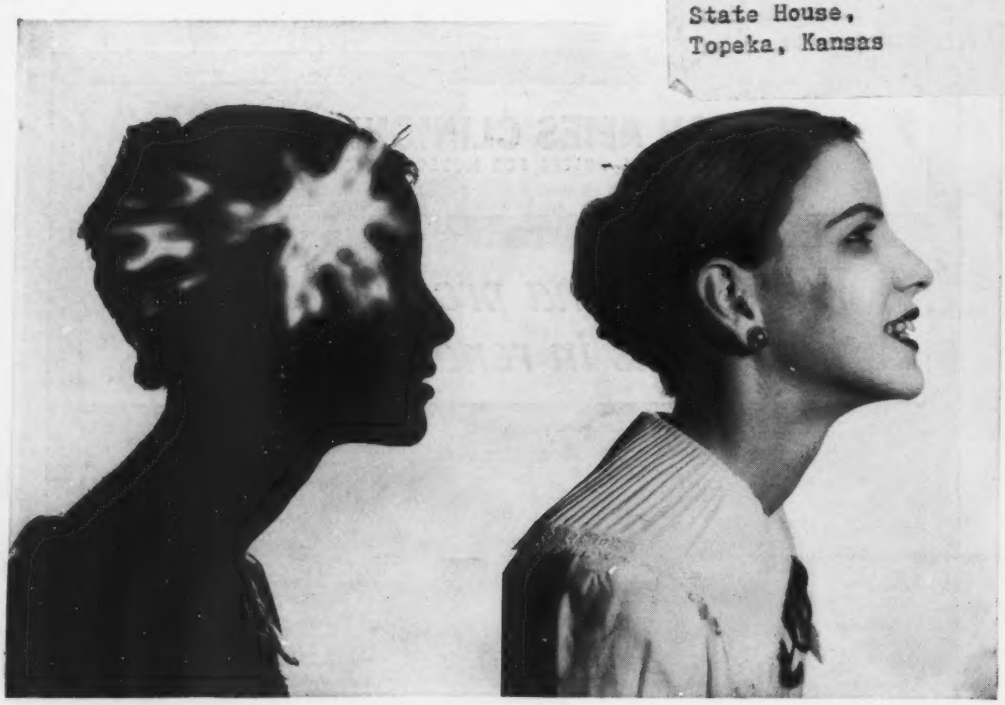

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